

# CUMSTON (C. G.)

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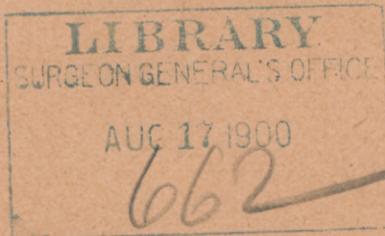
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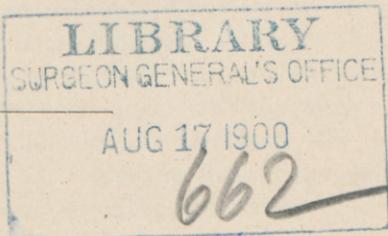
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## Parietal Fibro-Myomata of the Uterus, and Professor Vulliet's Operation for their Extraction.

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WHEN assistant in Geneva, I had the good fortune to operate with Professor Vulliet at many of his gynæcological operations, and having witnessed the excellent results of an operation devised by him for the radical treatment of parietal fibro-myomata of the uterus, I thought a paper on this subject might be of interest to my *confrères* here. I will divide this paper into two parts. The first will treat of the ætiology and pathology of the neoplasm under consideration; the second includes the diagnosis and indications for operating, according to the teachings of Professor Vulliet, a description of his operation, and notes on cases treated.

### PART I.

What I understand by parietal fibro-myomata are those encased in the wall of the uterus, and neither sub-serous nor intra-uterine. These fibro-myomata may be covered on one of their sides by only the endometrium or the peritoneum. Their clinical physiognomy consists in the fact that they project a little, or not at all, in the state of an independent tumor, into the uterine or abdominal cavity. It is to be noted that I do not report in the cases given in this memoir any cases of

abdominal fibrous tumors that were removed by laparotomy, or those of well-marked intrauterine polypi.

*Ætiology.* The ætiology of fibro-myomata of the uterus is surrounded by obscurity, as much as is the origin of all other neoplasms. Cambermon (1) attributes the formation of "fibrous bodies" and "polypus of the uterus" to a non-fecundated ovum, continuing to live by its own organic life and transforming itself into a fibroma after passing between the crypts of the uterine walls. Virchow (2) says that the pathological processes of the formation of fibro-myomata must be explained either by an abnormal intensity of local inflammation, as in the case of partial irritation of the mucous membrane gaining on the contiguous parenchyma, or to a debilitated condition of the uterine walls occasioned by constitutional troubles, as chlorosis or local diseases. Winckel (3) and Gottschalk (4) also uphold local and long-continued irritation as a cause. Cohnheim (5) attributes the origin of all tumors to the ulterior development of embryonic germs which have not served for a foetal development. According to this writer there are germs in the uterus capable of developing under the influence of a physiological irritation, namely, preg-

nancy. It is possible that these germs can develop also without this physiological irritation, for it is to be remembered that many fibro-myomata occur in women never having been pregnant, and end in a regular and typical formation. He brings forward the same argument as Cambermon, — that fibroids develop only after puberty, consequently, after the formation of the ovum.

Galippe and Laudowzy (6) sterilized the surface of two fibrous bodies of the uterus and cut them with an aseptic knife. The pieces from the centre, being placed in different culture-media, showed spherical micrococci united two by two in large colonies or in long chains, and also small bacilli, isolated or united two by two, forming long filaments. The uterine fibro-myomata appear to these writers to be the result of a proliferative irritation produced by a micro-organism. The presence of micro-organisms in the tissues is such a common fact that their action can only be determined by isolating them and by their inoculation in animals. If experiments should prove that inoculation produces the formation of a tumor similar to that in which the suspicious organism was found, then only have we the right to attribute a pathological rôle to any one of these minute beings.

Certain peculiarities supporting Galippe and Laudowzy's theory were pointed out at different times by Prof. Vulliet. Some small localities situated at the foot of the Jura Mountains furnished us with a large proportion of the cases treated, while in those coming from other regions to Prof. Vulliet

for uterine troubles the number of fibro-myomata was much smaller. The genesis of these tumors might be explained in the same manner as that of oitre, which centres itself in certain districts and appears also to result from a micro-organism. Further on I shall furnish another argument in favor of this theory.

It is in the prime of life that fibroids develop with the greatest frequency. Gusserow has collected nine hundred and nineteen cases, as follows :

10 years....	1 case	of fibro-myoma.
14 years....	1	“ “ “ “
16 years....	1	“ “ “ “
17 years....	1	“ “ “ “
18 years....	3 cases	“ “ “
19 years....	8	“ “ “ “
20 to 30 years....	156	“ “ “ “
30 to 40 years....	357	“ “ “ “
40 to 50 years....	338	“ “ “ “
50 to 60 years....	36	“ “ “ “
60 to 70 years....	12	“ “ “ “
70 and above....	5	“ “ “ “

Winckel, with 527 cases other than those of Gusserow, gives the following table :

20 years....	9 cases	of fibro-myoma.
20 to 30 years....	98	“ “ “ “
30 to 40 years....	180	“ “ “ “
40 to 50 years....	180	“ “ “ “
50 to 60 years ...	52	“ “ “ “
60 to 70 years....	6	“ “ “ “
70 and above....	2	“ “ “ “

From these tables we see that the maximum of frequency is between thirty and fifty years, and from this period the frequency of the affection decreases progressively towards the two extremities of life. Unmarried life, abstention from coitus, sterility, do not seem to exercise any influence toward the production of this neoplasm, contrary to the affirmation of

certain authors, for they are met with more frequently in married women. Dupuytren (7) was of this idea. Of fifty-eight cases of fibro-myomata collected by him, fifty-four were married, or at least not virgins. Of fifty-one cases, nine women had not been delivered of children. Among nine-hundred and fifty nine cases mentioned by Schroeder, Hewitt, Marion Sims, More Madden, Engelmann and Gusserow, we find six hundred and seventy-two married woman, two hundred and eighty-seven unmarried, but not all virgins; and of the six hundred and seventy-two married subjects, four hundred and sixty-four were mothers.

*Pathological Anatomy.* Anatomically, fibro-myomata are composed of the same elements as those of the muscular layer of the uterus; consequently it is made up of striped muscular tissue and a variable quantity of connective tissue. Bard (8) gives the following description: "The cellular fibers are much elongated, very narrow and striation is hardly evident, if at all so. The nuclei are seen as long, slightly sinuous rods. The muscular nature of these tumors is sometimes difficult to appreciate in sections that have simply been hardened; it is not to be doubted, however, when the cells have been dissociated by the action of a forty per cent. solution of potash. The cells are juxtaposed and are not bound tightly to gether. They remain single or form bundles of only slight thickness, ordinarily woven together, taking every direction possible. Quite often they take on a sinuous form and they rarely remain rectilinear for any length of time. Interstitial connective is only slightly

abundant and may be completely absent. If the connective tissue predominates over the muscular, the tumor is harder, more circumscribed and independent of the organ and less vascular. If, on the contrary, the muscular fibres are in greater number, the neoplasm is softer, more diffused and intimately mixed with the uterine muscular tissue, and more vascular."

Virchow states that the sub-mucous type is softer and contains less connective tissue than the sub-serous, but in the numerous specimens that I have examined I have never been able to make this distinction. An anatomical distinction between fibroma and myoma is not admissible, because there is never a complete absence of either of the two constituent elements.

The soft myomatous tumors are much less frequently met with than the harder varieties; they are often single and are generally situated at, or in the neighborhood of, the fundus. It is certain that all fibro-myomata have an intra-parietal origin. They arise in the center of homologous tissue, sometimes near the serous, at others near the mucous membrane, and occasionally in the central zone of the wall. Later, the tumor becomes either sub-peritoneal or sub-mucus or interstitial in type, according to the direction of its growth and the direction in which the contraction of the muscular walls push it. If the external and internal uterine layer are of equal strength, the neoplasm remains indefinitely intra-parietal; but if this equilibrium is disturbed, the tumor will be forced either into

the abdominal cavity or that of the uterus itself, according to the direction of the greater force, and the final result of this migratory action is the formation of a pediculated tumor, which is either sub-serous or sub-mucous. Single interstitial tumors, having developed to a considerable size, may protrude beneath the peritoneum and also under the endometrium, and in a certain sense might be considered sub-serous as well as sub-mucous. This form of neoplasm develops more rapidly than when situated elsewhere, probably on account of its great vascularity, and in its early stage is often in such close connection with the surrounding tissues that the capsule is with difficulty to be made out.

Certain circumstances, I think, retard or prevent migration of the tumor. This is the case in fibromata which are originally soft, because the muscular element predominates over the connective tissue element, and in those which become so often œdematous or undergo some form of degeneration, as well as in diffused fibro-myomata. Lastly, migration cannot take place when the entire uterine wall undergoes a fibroid transformation in such a manner that there no longer exists any contractile force. Every fibroid has not consequently a tendency to migrate. I believe that there is in the parietal contractility an expulsive force, the *vis medicatrix naturae*, by which the organ endeavors to rid itself of the foreign body. Fibroids of the uterus are separated from the walls of the organ by a fibrous capsule; the more apparent, the older the date of the neoplasm, the larger its

size and its richness in muscular fibres. Exteriously it is enveloped by a loose layer of connective tissue, in such a manner that it may be completely detached from the uterine tissue. The vascularization, which depends entirely on the rapidity of the growth of the neoplasm, differs according to the type of tumor.

Garrigues (9) says that fibroids are not so apt to be bound to the peritoneum of the abdominal wall or other organs as ovarian cysts, but that if they do form such adhesions, these are often broad and contain very large blood-vessels, so much so that the neoplasm to a great extent derives its nourishment from the adhesions, and that in course of time may be severed entirely from the uterus and are found attached exclusively to another part of the abdominal cavity. They may even lie loose in the abdomen as necrobiotic masses without forming new adhesions. Fibroids are very frequently accompanied by a local peritonitis, and may also cause cellulitis as well as acites usually of a serous nature; sometimes chylons, rarely bloody.

Hæmorrhage is considerable as long as the sub-mucous tumor is within the cavity of the uterus, but when it is expelled through the cervix in form of the so-called polypus, this symptom may no longer exist, although the pressure exercised by the cervix often impairs the circulation of the neoplasm and a venous oozing ensues. Duncan describes a case in which death occurred from rupture of a venous sinus in an interstitial fibroid; the sinuses were so large that a small crow's quill could be introduced.

The endometrium covering the neoplasm is altered. It is congested, the capillary network is engorged with blood, this being due to the delay of the venous current, a cell hyperplasia takes place with proliferation of epithelium, escape of leucocytes, etc., and this catarrhal condition is quite characteristic of the intra-uterine type. When the neoplasm is very large, the endometrium as a whole is changed. The utricular glands are often profoundly altered by venous stasis occurring in the organ.

*Modifications of fibro-myomata.*

All neoplasms encased in the uterine walls produce symptoms of stagnation in the vessels of the endometrium, as I have already said. These symptoms are the more pronounced the nearer the neoplasm is situated to the uterine cavity. Prof. Vulliet has often found in the uteri which he dilated that, when the endometrium could be traced by the eye as far up as the parietal neoplasm, this membrane was red, swollen and œdematous. It is readily understood how streptococci and staphylococci introduced on to the endometrium in such a condition of congestion could easily produce a real inflammation, and, when this is once installed, it would invade the underlying tissue, the endometritis becoming metritis, and these inflammatory lesions would naturally become more marked in the tissue of the neoplasm, which, on account of its poor vascularization, would offer less resistance than the normal parenchyma. This inflammation can go on to necrosis. But the most frequent cause of inflammation of fibroids is undoubtedly due to traumatism

produced during explorative or operative attempts and pregnancy. According to Gottschalk, long-continued sexual excess, etc., may produce inflammation. (10.) Inflammation of a fibroid must not be confounded with the momentary increase of volume to which they are subject at the approach of menstruation. Pure and simple inflammation is rare, and is nearly always followed by suppuration.

*Suppuration.* G. Braun (11) observed putrefaction of a fibro-myoma which distended the uterus 17 centimeters. Hecker (12) withdrew by puncture several litres of pus from a so-called ovarian cyst; the autopsy showed it to be a large fibro-myoma. Charles Carter (13) showed at the Obstetrical Society of London a uterine fibro-myoma 8 inches long by 6 inches wide, from a woman of sixty-nine years. In the anterior wall of the neoplasm was found an excavation, from which three pints of pus had issued. Vulliet withdrew by puncture four litres of pus, and a second time by incision about twelve litres. The causes of suppuration of uterine fibro-myomata cannot all be explained with certainty. I could, however, mention cases of purulent discharges in the region of the neoplasm where the putrid inflammation had propagated itself beyond the tumor. Suppuration and breaking down of these tumors have been observed in the gravid uterus. (14.)

*Necrosis.* In necrosis, spindle-shaped purulent infiltrations exist at the border of the necrosed tissue. As has been stated, traumatism and subsequent entrance of streptococci or

staphylococci is the probable cause of suppurating fibroma, although I have not been able to find reports of bacteriological examinations made of the pus found in these neoplasms. In case X of our series, the purulent transformation took place after a negative electro-puncture. Calculous transformation has also been accused of predisposing the neoplasm to supuration. Necrosis is more often met with in cases of interstitial or sub-mucous fibroids, and is probably the result of pressure exercised upon the vessels round about the capsule, thus lessening or entirely preventing nutrition of the growth, with resulting necrosis. In the sub-mucous type, the endometrium covering the neoplasm is thus often ulcerated and spontaneous enucleation follows.

Cornil (15) has recently demonstrated the presence of zones of necrosis in fibro-myomata in the gravid uterus, having undergone in certain portions a marked softening, situated in the midst of fibrous tissue. These zones of mortification are due to the compression of hypertrophied bundles of muscular tissue in the tumor, and may produce a notable atrophy or even disappearance of a more or less considerable portion of the neoplasm after labor. It is by necrosis of the pedicle, compressed between the lips of the "boutonnière" through which the neoplasm issues that spontaneous detachment of polypi is produced, having passed from the interstitial state to that of a pediculated growth.

*Fatty Degeneration.* This rarely involves all the elements of the neoplasm. The retrogressive metamorphosis is usually followed by dim-

inution in the volume of the tumor, its consistence becoming more firm because the connective tissue does not undergo any change. This process is met with especially after the menopause or after oöphorectomy. Fatty degeneration, which has been observed during post puerperal involution, may exceptionally end in the total resorption of the neoplasm; sometimes cystic formation results.

*Calcification.* This transformation is more apt to occur in interstitial and sub-serous fibroids. (16.) It is composed of phosphate, carbonate and sulphate of calcium. It commences in the centre of the growth in a series of isolated bundles, running in different directions and separated by fibrous masses. Calcification may invade the entire neoplasm, and in this case it may become detached and be eliminated by the bladder, rectum or through the abdominal wall. In the advanced stage bone-like masses may form, which old writers look upon as an osseous transformation. Calcification is the consequence of modifications in the nutrition of the tumor.

*Carcinomatous and Sarcomatous Degeneration.* "Whether carcinomatous degeneration specially affects fibroid tumors is a disputed point." (17.) Several writers, among them Klob (18) and Foerster (19) upheld the view of a carcinomatous transformation taking place in certain fibro-myomata, but it is very possible that these writers were mistaken in their diagnosis and that they had to do with sarcomata proceeding from the connective tissue. De Sinéty (20) says that cancerous transformation of fibroids has been admitted by some

writers, but at a time when histology was in its infancy. He does not think that there exists a single case which can demonstrate this fact, and Klob's writings do not appear to him as at all conclusive. He adds, however, that cancerous infiltration can consecutively invade a fibroid, but this is a question of an invasion and not of a transformation which has never been demonstrated. Carcinomatous degeneration may also be found in uteri from which a polypus has on a former occasion been removed.

*Mucous Degeneration.* Mucous degeneration is sometimes associated with dilatation of the vessels of the neoplasm. It is characterized by the appearance of abundant liquid in the interstitial connective tissue. This liquid resembles that of œdema, but the microscope shows a proliferation of round cells with a nucleus, and reagents prove the existence of mucin. (21).

*Cystic Degeneration.* This form of degeneration is incompletely understood as to its origin. There are several varieties. The best defined one is known as *lymphangiectode myoma* (Leopold). It consists in an exaggerated development of the lymphatics of the neoplasm with cystic dilatations. The lymphatics are seen as a series of pockets and sinuses filled with a clear, transparent fluid, which coagulates when exposed to air, and is nothing more than lymph. As they become larger, the pockets may break down and form one large cavity. The characteristic of a cystic cavity of lymphatic origin is that it is lined with endothelial cells, thus

distinguishing it from other kinds of intra-myomatous cysts.

Baraban (22) recently upheld the hypothesis as to an epithelial origin of the cystic cavities of certain cysto-myoma. He examined two small myomata which had developed at the origin of the tube. In these tumors, he found small microscopic cysts, lined with a ciliated cylindric epithelium, much like the epithelium of the tubes, and he considers this the result of an inclusion of the elements of this organ. Baraban mentions the studies of Riedel and Fischel on the persistence of the remains of the canal of Wolff in the muscular tissue of the uterus and vagina; also a case reported by Diesterweg, who found in the interior of a uterine polypus of a myomatous nature a cavity lined with ciliated cylindric epithelium, and he advances the theory that the origin of cystic cavities found in certain cysto-myomata, developed in the walls of the uterus, may be a congenital or acquired inclusion of tubal, uterine or wolffian epithelial elements. The cases cited by Babès, Ruge and Schroeder, in which cysts lined with cylindric epithelium were found in the centre of fibroids, confirm the opinion of Baraban. All cysto-myomata do not enter into the two preceding groups. There are some having only one cystic cavity, with regular walls, lined with little filaments and shreds more or less thick, crossing the cavity in different directions and adherent to the walls, thus dividing it into pockets. The contents of these cysts is a serous, sometimes bloody, occasionally hæmorrhagic liquid. The internal surface of

the cyst shows no trace of epithelium ; in the hæmorrhagic cysts a layer of fibrin, colored with blood, is found. Dilated lymphatics are never found in the neighborhood of these cysts. (23.)

These writers claim that some intramyomatous cysts are the result of *cystic degeneration of apoplectic foci* which had occurred in the neoplasm.

Another hypothesis attributes the formation of cystic cavities to the appearance of foci of *granulo-fatty molecular disintegration*, which may be produced in the centre of large tumors, whose nutrition is obstructed. It consists in a necrobiosis with formation of soft, phymatoid masses, which later fall to pieces and give place to cavities filled with a more or less liquid substance (Pozzi). Cystic transformation is found more often in sub-peritoneal and pediculated myomata, and it is admissible that under the influence of an obstructed circulation in the midst of the neoplasm, a stasis with œdema takes place, and later an alteration of the nutrition of the muscular tissue, resulting in their disintegration and liquefaction.

*Amyloid degeneration* is very rare, only one case being on record and reported by Stratz.

*Inflammation of the capsule* is ordinarily the result of a lesion of continuity in the endometrium, and easily produces necrosis of the tumor, usually ending in serious peri-uterine inflammation and septicæmia. (24). The following statistics from Martin give an idea of the frequency of the different degenerations. Of 201 cases of fibro-myomata he found :

Fatty degeneration.....	10 times.
Calcification.....	3 times.
Suppuration (sub-mucous tumors).....	10 times.
œdema.....	11 times.
Cystic degeneration.....	8 times.
Telangiectasic degeneration..	3 times.
Sarcomatous degeneration...	6 times.

If I have entered at some length upon the pathology of fibroid tumors, it is only to be the better able to explain certain interesting particulars of some of the cases which are to follow.

## PART II.

*Diagnosis and indications for operation.* It is generally not very difficult to recognize the presence of a fibroid, nor to determine its approximate size. It is much more so to determine its situation, consistence, contours, its relations to the walls of the uterus, to estimate the thickness of the tissue covering it. A diagnosis of this degree of exactitude is only possible when the uterus is dilated, so that the interior may be palpated directly by the finger. But even the most careful anatomical diagnosis leaves certain things unknown. It reveals to us what the tumor is at the time of examination, but it does not inform us of its tendency or its future behavior. Only by repeating the examination several times can we elucidate the important question, viz.: if the neoplasm tends to approach the peritoneum or the endometrium. The method of dilatation by progressive tamponing is the only one susceptible of keeping the uterus open for a long enough time to make a series of comparative examinations.

It is to be specially recommended in cases of fibroids of the uterus when an examination is to be made. The other methods of examination usually leave us uncertain on points which are, however, of first importance as regards our therapeutical decisions. Persistent dilatation facilitates topical treatment as well, whether it be electricity or parenchymatous injections of ergotin. Prof. Vulliet is in the habit of giving electricity to all patients that he has dilated, while they are under observation, and this has permitted him to follow by touch the progress of a spontaneous enucleation, determined or accelerated by the electrical currents.

*Hæmorrhage.* In principle, it may be said that the more a fibroid approaches the endometrium, the more the hæmorrhages that it produces are intense and difficult to stop. Hæmorrhage is generally considered the principal indication for removing, by laparotomy, fibroids that are inoperable by the natural passages. Prof. Vulliet does not believe this. He believes that the hæmorrhages are not due, as many think, to inertia resembling that which occurs after labor. The welfare of the patient may consequently be obtained by means other than the removing of the foreign body that is supposed to produce the perturbation in the uterine contractility. In the first place this inertia has never been proven by anyone; in the second the hæmorrhage appears to be due to a cause materially demonstrated and more simple; in other words it is due to alterations of chronic inflammation, by which the endometrium is always

affected when the fibroid is situated in the neighborhood of the cavity (vascular dilation, stasis, congestion); the uterus bleeds on account of its diseased mucous membrane; inertia has nothing to do with it. Local hæmostatic treatment will usually control even the most serious flowing. A persistent hæmorrhage is a sign that the neoplasm is near the cavity of the uterus, and thus can give us hopes of its extraction by the natural passages, for even in cases where it is completely interstitial, a fibroid growing near the cavity increases the thickness of the walls, so that the tissues behind which it lies can have acquired sufficient height so that when once opened it will give room enough for the neoplasm to be expelled.

*Increase in volume of the uterus and compression.* If a uterus with a fibroid develops by a gradual and vertical ascension like a pregnant organ, the symptoms are no worse than in the latter condition, but if it grows in the horizontal position, and this is the case usually in fibroids situated in the lower portion of the uterus, symptoms of compression appear as soon as the pelvic walls, nerves vessels, intestine or urinary organs are reached, and indications for a radical operation via the abdomen may become urgent.

*Incarceration and malposition of the uterus* are points which have not received the attention that they should. Whether they preëxist or come about after the development of a fibroid, they can be the cause of serious and precocious accidents. Posterior deviation and fixations are especially of great danger. Whether

the organ be in retroversion or flexion, the cervix rises behind the symphysis as the tumor grows and the fundus falls into Douglas' cul-de-sac. Under these conditions, both uterus and tumor end by being enclosed under the promontory, and then begin most serious accidents from compression.

When a uterus in this condition is examined, the pelvis is found completely obturated to such an extent that the finger cannot feel the orifice of the cervix up against the symphysis, nor be passed behind the fundus, pressed as it is against the sacrum. These are cases in which it is urgent to act, for a condition of things such as these produces dangerous compression of the intestine and urinary organs. By rendering movable or reducing a uterus thus deviated or fixed, all accidents necessitating a radical operation may be overcome, if by error of interpretation, they are considered due only to the development of the neoplasm. (See cases XI.) Retroversion is a well known complication of pregnancy, and when it occurs in a uterus with fibroid it produces a similar condition demanding the same treatment, viz.: reduction of the organ in its normal direction and accomplished by a kind of massage and taxis. The uterus may also be deviated to one side; this is usually the case when the fibroid springs from the sides and develops between the folds of the broad ligament.

I shall not give a *résumé* of the different operations devised for removal of fibroids nor of their medical treatment, but will immediately describe Prof. Vulliet's operation for

interstitial fibroids. If these tumors are large, they are at once recognized; but, if they are small, their symptoms are not sufficiently characteristic to indicate an examination. However, they are often the cause of insidious hæmorrhages; the menses become more abundant, the patients are anæmic and fall into a condition whose cause cannot be found out unless a careful questioning concerning menstruation is made. Once the attention is drawn to them it is rare that other peculiarities do not show themselves, thus furnishing presumptions in favor of a uterine trouble necessitating a complete examination. The practice of dilating the uterus for searching the cause of lesions of obscure character has often made Prof. Vulliet discover small latent intra-parietal fibroids, and when found they should be removed, because this variety is the one that furnishes the largest specimens of fibroids, that can only be removed by laparotomy when once developed.

As to large interstitial fibroids, they can develop without changing the dimensions of the uterine cavity, and it is in this case that the cavity is too small to allow the extraction of the neoplasm through an incision which would have to be made the entire length of the uterine cavity, and under these circumstances it is better to perform laparotomy. But if the cavity is enlarged so that its depth is in proportion to the greatest diameter of the tumor, it may be removed by the operation that is about to be described. However, when a maximum dilatation has been made, and the tumor is found to be so large that

there is no means of reaching its upper limits with the fingers introduced into the organ, all operation per vaginam is out of the question, for if infection should take place, the impossibility of forced enucleation of the tumor, which is the only thing in such a case, renders the position very dangerous; consequently when the tumor is so large, it is better to perform a laparo-myomectomy at once. Vulliet's operation is composed of three steps: (1) dilatation; (2) "débridement" of the neoplasm; (3) after treatment.

*Dilatation.* In order to make the diagnosis, dilatation must have been great enough to allow the entire finger to penetrate easily into the cavity of the uterus, and, to operate, still more space is required. If the cavity is not lengthened, dilatation to the necessary degree for the introduction of the index finger and instruments is sufficient. If the cavity is lengthened the index will not be sufficient, and the index and the medius will be necessary in order to enter far enough into the uterus. If the fibroid is very high up in a deep cavity it will be necessary to introduce the hand as far as the root of the thumb. It must be understood that before performing such a dilatation, the physician has tried to utilize the access given by drawing down the organ and pressing on it through the abdominal walls, and, to do this, complete narcosis is necessary. Great dilatations cannot be made in every uterus with intraparietal fibroids, but the greater the sub-mucous surface of the neoplasm, the greater is the possibility of considerable dilatation, this being due

to the special changes produced by the fibroid.

There are cases in which progressive tamponing is alone sufficient means of dilating; there are others where it is necessary to substitute for cotton substances which give a more regular dilatation. Sponge tents or laminaria, such as are found in commerce, are not large enough to dilate the entire depth of very deep uterine cavities. Vulliet uses in certain cases male urethral sounds of laminaria, cut the length of the cavity, several being inserted together. When sponge is to be used, it should be selected for the size of the cavity to be dilated, and should be most carefully prepared. The sponge is cut like a cone. In order to obtain a large dilatation at the fundus as well as the orifice two are inserted; one is introduced, the base being at the orifice, the other is the reverse. Operation should never be performed immediately after removing the cones; the cavity is irrigated and packed with cotton, which is left in place for two days; after this we are sure that the field of operation is sterile. When sufficient dilatation is obtained, the patient is anæsthezied, the uterus is brought down and one or more fingers are introduced to the fundus.

*Débridement.* The incision ought not to be either a simple scarification or a "boutonniere." To accomplish the end, the direction and length should be proportional to the direction and length of the greatest diameter of the neoplasm, and its depth should be that of the tissues covering the tumor. The direction and length

of the greatest diameter of the tumor are sometimes difficult to establish, but the more one is familiar with intra-uterine examination, the less it is to do. Vulliet has invented a bistoury having a concealed blade. It is introduced like a uterine sound, and, when brought to the upper limits of the tumor, the blade is pushed out to the desired length. The end of a finger is placed over the back of the instrument, a counter-pressure is made over the abdomen with the free hand, and the incision is made from the top to the bottom limits of neoplasm; this done, the blade is hidden, and the instrument withdrawn. It is not well to incise the capsule of the tumor, for as long as the fibroid is not opened, necrosis is not to be feared.

The ideal operation consists in producing a gradual descent of the tumor towards the uterine cavity, and not in bringing about its immediate expulsion out of the walls. It is a fact that fibrous polypi, which are enucleated and delivered spontaneously without opening of the capsule, are those which cause the least trouble. It is better to try débridement two or three times rather than go too deeply the first time. The higher up the fibroid, the greater must be the precautions. When a knife such as has been described is not at hand, a button-pointed one may be used; the blade is covered by adhesive plaster so that only the end of the blade is exposed. Sometimes long scissors, curved on the flat, may be used, and they are necessary when the tumor projects irregularly into the uterine cavity; the incision is then

made from the lower to the upper limits as far as possible. When dilatation is such that the interior of the cavity may be seen, the incision, which is not painful, may be done without narcosis. Débridement causes quite a hæmorrhage, but this is of short duration. This fact may astonish those who do not know the hæmostatic effects of scarifications in cases of loss of blood due to a fibroid. After débridement, a long intra-uterine irrigation of some disinfectant, the cavity and vagina are packed with iodoform gauze and the patient put to bed.

*After-treatment.* On the next day ergotin is given and electricity applied. The packing is renewed every forty-eight hours. Neither the finger nor foreign body excepting the cotton and the irrigator should be introduced into the uterine cavity. Three eventualities can happen after incision: First, enucleation is immediately done; secondly, the endometrium unites and the tumor slowly develops into a polypus protruding into the uterine cavity; and lastly, no modification may take place, the neoplasm remaining in the same position. The length and depth of the débridement, the more or less intimate connections of the neoplasm with the muscular layer of the organ, the consistence of the fibroid, the degree of contractility of the external layer, are certainly the circumstances which determine the final result of the operation. Enucleation is generally announced by characteristic pains of labor; if there is no indication of infection, the ex-

pulsion should be allowed to continue without any interference on the part of the surgeon. When the efforts of the uterus are thought to be exhausted, a digital examination should be made. After such a labor, so to speak, the neoplasm will be found at different degrees of descent; sometimes it is partly in the vagina, at others it may not have passed the external orifice, and Vulliet has also found it engaged between the lips of the incision. Complete enucleation has never been seen to occur at once; ordinarily the parts expelled are adherent to the remainder of the tumor buried in the walls of the uterus, and it is necessary to intervene in order to complete the expulsion.

Elimination may also take place in the form of shreds, separated from the rest of the neoplasm, and these are generally flattened discoid masses with even edges. Separation takes place in the cellular tissue which unites the islands which form the whole of the tumor. With good asepsis and intra-uterine irrigations and dressings, the organ can be kept from all contamination. In two cases in which the tumor took three weeks for its elimination, no fever, bad smell or any sign of decomposition was noted. Prof. Vulliet has seen enucleation commence the day following debridement, and it may not commence before six, eight, fifteen and even twenty-one days later. If at the end of three weeks no symptoms has been observed, it is probable that the incision has closed and that elimination will not take place in this manner.

*Polypus Formation.* Even if no shreds have been passed at the end of three weeks, the surgeon should not be discouraged at the result of his incision, for the growth can still pass into the uterine cavity surrounded by the mucous membrane and transformed into a polypus. The incision closes, but the weakness of the deep layers remains. The incision has thinned it, and consequently the growth may advance towards the cavity of the uterus. This fact is illustrated in case V.

*Negative Result.* Vulliet has incised the mucous membrane when this was in sight, and he was able to make the incision the necessary length and depth, and in spite of this the fibroid did not budge from its place. Had the external layer lost its contractility, or were the connections between the growth and the walls too intimate? This is not possible to determine. Vulliet thinks that fibroids are subject to œdema or degeneration, that all those not possessed with a slightly greater consistence than the uterine wall do not undergo sufficiently the effect of the contractions, and it is to this that he is inclined to attribute negative results. But in this last category of cases he has never regretted the incision, for in all his cases he has obtained a diminution, and in some even complete cessation of the hæmorrhages, as well as an arrest of development of the neoplasm.

*Contra-indications.* This procedure is absolutely contra-indicated in all cases in which the dimensions of the growth are such that an incision the entire length of the uterine cavity is

not large enough to allow the production of spontaneous enucleation. Also, even when the uterine cavity is large enough to permit of a sufficiently long incision, the upper limits of the tumor are too high up in the abdomen, thus preventing forced enucleation in case commencing infection might appear. And lastly, any symptom indicating a virulent process in the uterine cavity is an absolute contra-indication.

### III. REPORT OF CASES.

I SHALL divide our cases into four categories—1, the cases where there was incision followed by spontaneous enucleation; 2, those where incision was followed by partially spontaneous and partially forced enucleation; 3, operations in which the incision was followed by neither spontaneous nor forced enucleation; 4, cases of dilatation without incision.

The first series is composed of four cases which are reported as follows by Prof. Vulliet:—

CASE I.—“In 1882 I made my first operative attempt, and under these circumstances: Treating a lady for grave hæmorrhages that were not arrested by any of the usual methods, I made a digital exploration of the uterine cavity. After the procedure already indicated I discovered in the superior part of the posterior wall a discoid tumor, having the diameter of a half-dollar. It had the consistence usually presented in fibromyoma; consequently it was distinct from the consistence of normal uterine tissue. This tumor gave me the impression of being nearer the

mucous than the serous membrane. I knew that sacrifice of the mucous membrane covering a fibromyoma is an excellent means of producing hæmostasis. My patient was in danger. I then decided to profit by the dilatation for incising the mucous membrane of the uterus. I made an incision longer than the diameter of the tumor, and deep enough to reach the new growth. No accident occurred. The hæmorrhages stopped; the periods came back at their time in usual quantity. I intended to follow this case, when I learned that my patient had left Geneva without informing me. Six months afterward I saw her again; she was in perfect health. By bi-manual exploration I found the uterus was normal in shape and size.”

CASE II.—“In June, 1882, I performed a similar operation for a fibroma, having the diameter of a dollar. It protruded slightly into the uterine cavity. The layer of tissue covering it was extremely thin. This, then, was not a typical intraperitoneal fibromyoma. Nevertheless, the greater part of the mass was encased in the wall, and it had the greatest resemblance to an interstitial fibroma. The incision did not give rise to any accident. The neoplasm began to come out of the cervix at the end of a week. I made frequent antiseptic injections, and attentively watched the descent of the flaps, and as by degrees they reached the vulva I resected them, after which the vagina was dressed with iodoform gauze. The elimination was completed at the end of three weeks. No fever existed.”

“These two cases were in private patients; I mention them because they prove the harmlessness of the incision, and also because they explain how I was led to deliberately attack small fibro-myomata entirely intra-parietal — that is to say at equal distance from the mucous and serous membranes.”

CASE III.—“In the month of February, 1883, while replacing Professor Vaucher at the Maternity, I had the opportunity of performing a third operation. Ida W., servant, unmarried, aged forty-four; had one child twenty years ago. The child, she said, was very large; she was three months getting well. About the age of thirty-seven her monthly periods, which had been up to that time normal, became more frequent and abundant. In her thirty-eight year she had during eight months, and in her forty-first year during six months, a complete suspension of her terms; but except on these two occasions the menstruation took place every twenty-one, and even every fifteen, days. In spite of her approach to the menopause, her periods increased in frequency and abundance. In December, 1883, and January, and February, 1884, she bled without interruption, even when lying down. It was this that made her come into the Maternity. When we saw her in February, 1884, she was very thin, pale, and decidedly cachectic. The uterus is double the normal size, and not painful. Unable to work, she demanded treatment at any price. In the first clinical lecture I set forth the reasons which, under reserve of

examination, led me to diagnosticate the tumor as a fibro-myoma.

The following day the patient was anæsthetized, and we examined the uterine cavity by direct digital examination. The night before a spongent was introduced into the cervix. When the patient was anæsthetized I brought the cervix into view with a speculum, and seized one of its lips with a pair of my forceps. The tent being withdrawn, I introduced the index finger as high as possible into the uterus; then by a gentle but continued traction I lowered the organ until my finger touched the fundus. Then confiding the forceps to an assistant, keeping the uterus down, I found, by utero-abdominal bi-manual exploration, a spherical, flattened mass in the anterior wall, well defined and hard, of a consistence analagous to that of fibro-myomata. The uterine cavity showed no deformity of its walls, no projection; only the exterior surface of the anterior wall, instead of presenting its normal curve forwards, seemed, on the contrary, convex and globular. I asked Dr. Fontanel to make an intra-uterine examination, and let him note all these particulars. My diagnosis was then confirmed: I had to do with a fibro-myoma of the typical intra-parietal variety. It seemed disposed to develop rather more into the abdominal than into the uterine cavity. I had a very clear idea of the thickness of the tissue covering the neoplasm. Encouraged by my previous experiments, and convinced of the harmlessness of an incision of the uterine wall, I decided to try to change the direction of the migration

of the neoplasm by giving it an easy issue into the uterine cavity. An incision was also justified as a means of hæmostasis.

I made an incision with a button-end bistoury, about a centimetre deep, beginning at the fundus uteri, and ending a centimetre above the external orifice. The hæmorrhage was insignificant. The uterus was irrigated with a  $\frac{1}{1000}$  sublimate solution, and was tamponed as well as the vagina with iodoform gauze. Two days after Professor Vaucher transferred the patient to his ward, and I did not see her again. I heard that a parametritis developed, from which she recovered perfectly. At this time the Maternity was infected, so that this complication is not to be wondered at. We took all possible measures, but without success. Infectious complications continued to appear after energetic measures were taken by Professor Vaucher. Four months and eight days past without news from this patient, when she came to the consultation at the Polyclinic. She said that she lost no blood during the week following the operation; but at the end of the week the hæmorrhages, although not so profuse as before, appeared two or three times a month. They diminished afterwards, and during the week preceding her first visit to the Polyclinic no blood was lost. She only mentioned abundant whites flowing, without smell, during this last period.

When I placed the patient in the examination chair I was in no way satisfied with the result of my operation—parametritis and return of the hæmorrhages; but the minute my

finger touched the cervix my ideas changed. I felt, crowded between the lips, the inferior segment of a polypus, free on all its periphery, except in front, where it adhered to the cervical wall, exactly at the point where my incision ended. By penetrating into the uterus I found the same state as high up as my finger could reach. The polypus was free everywhere, excepting at its anterior part, from which the pedicle started, inserting itself on the entire length of the anterior wall, precisely where I made my incision in the month of February. This pedicle was the same length as my incision. I cannot complete my description better than by comparing this pedicle to the mesenteric attachment of the intestine. I insist on this particular disposition of the attachment of the polypus, because it proves that there was only a simple coincidence between my operation in February and the presence of a uterine polypus in June. *Per speculum* the polypus was well seen, as well as its inferior implantation on the anterior lip. I could have immediately performed ablation of the polypus; nevertheless, I explained to the students the reasons which caused me to defer it. There was no urgency for operating, for the patient had lost no blood, and no signs of inflammation or infection were present. On the other hand, there were the following disadvantages: the equator of the polypus had passed the internal orifice, so that the uterine contractions could, in the future, act with more energy on the bulk of the neoplasm. These contractions could, in lengthening, trans-

form the membranous pedicle into a funicular pedicle, and accomplish the passage of the neoplasm out of the wall in the first place, and out of the uterine cavity afterwards. Once the tumor is completely isolated from the wall, the operation would be simpler and the chance of infection less.

Ergotin was prescribed internally, and tampons of tannin and injections of sulphate of copper locally. In July, Ida W. entered the Maternity, and I removed the polypus. The extirpation was very simple; the mass weighed about ten grammes. I saw the patient often. She has since gone back to her work as a servant, with health considerably better. The menstruation is very irregular and far from abundant. The uterus is very small in volume, as if it had undergone a certain decree of atrophy.

*En résumé*, the case was one of a small fibro-myoma, which, interstitial in February, became intra-uterine in June; this transformation was due to the incision. This incision weakened the resistance of the muscular layer existing between the neoplasm and the uterine cavity, and had given a preponderance to the layer between the neoplasm and the peritoneal cavity. Nevertheless, the migration of the neoplasm was not of sufficient rapidity to hinder the intra-uterine mucous membrane from cicatrising, otherwise the fibro-myoma would have immediately been expelled, and no polypus would have formed."

CASE IV.—Mrs. M. G., from St. Girod, aged thirty-seven; married at nineteen; had had neither child nor abortion. At the beginning of 1880 she noticed that her abdomen swelled.

Since this she experienced difficulties in passing water, which became gradually more pronounced, and suffered continually with pains in the kidney. In June, 1887, had abundant metrorrhœa, and the "flowers" commenced. Dr. Rosset found a uterine tumor, and ordered a subcutaneous injections of ergotin. She came to Professor Vulliet in August, and he found a fibroid tumor of the uterus, and told the patient to go home and continue the injections of ergotin, and advised, in addition, daily *seances* of electricity (fifteen minutes). She returned a month later. The situation, instead of being better, was sensibly worse. The patient suffered from sharp pains in the abdomen, obstinate constipation, and great difficulties in making water; she could not attend to her work. She entered the private clinic of Professor Vulliet.

General state good; abdomen projecting. Local condition — voluminous fibroid tumor obstructing the pelvis, pressing on the rectum and bladder, and reaching above the umbilicus. Cervix could not be found; the finger could not be insinuated behind the symphysis to search for the cervix. Retroversion of the uterus very pronounced; reduction was tried in vain, the body would not tilt above the promontory. Vulliet tried, at three different times, to reduce the organ. The fourth day all was prepared for a laparotomy; nevertheless, when the patient was profoundly anæsthetized, the professor made a last effort in taxis. Pushing above brought about no displacement. Pressing in the other direction

was tried; he felt the uterus slip lower down. He then made alternative pressures on the abdomen and per vaginam. The uterus gradually became more movable in both directions, and suddenly it passed the promontory and took its normal position.

The tumor was then more prominent; it extended about three fingers' breadth higher than before the reduction; it seemed, in the first place, as if there existed a tumor on both horns of the uterus. The cavity measured twelve centimetres, and had a curved direction, with concavity forwards. Dilatation was practised, introducing first Hegar's small bougies, then with strips of laminaria cut in form of urethral sounds. These were withdrawn the next day, and replaced by nine large iodoform tampons. At the end of eight days the cavity was well open. Vulliet found, by intra-uterine touch, combined with abdominal palpation, an interstitial fibroid of the posterior wall, and general hypertrophy of the walls. An incision was made in the tissues covering the part where the fibroid was found; then the uterus was tamponed.

The prominences felt at the right and left on the fundus diminished in size during the following days; the left horn remained more developed. These projections were attributed to a median furrow due to a long pressure of the promontory on the middle of the extremity of the uterus.

The tampons were changed once every two days. At the third dressing, the woman having felt the preceding day some expulsive pains, about fifteen grammes of pieces of

fibro-muscular tissue came away; and after this, each time the dressing was changed, *débris* of the same nature was found. The uterus still remained voluminous, but the tumefaction of the left horn formed the essential part of the abnormal development. Vulliet decided to make a second incision over this local enlargement. Hardly had the knife penetrated into this part when a flood of blackish, slimy blood escaped. The appearance of this blood clearly indicated that it was a product of retention. It was very probably a local hæmatometria, produced by the closing of the uterine walls unexpectedly on account of the compression which was produced when the tumor was imprisoned behind the promontory. Vulliet introduced his fingers and enlarged the opening. The return of this diverticulum to the cavity of the uterus caused a depth of fifteen centimetres of same.

Tampons were placed up to this diverticulum, and daily intrauterine dressings were made for a week (irrigations, tamponing, &c). Faradization and ergotin were ordered, and two weeks after the operation the uterus had undergone such an involution that it reached only two fingers' breadth above the symphysis. The patient then returned to her home. I learnt that when there she was in bed for two weeks for a *phlegmasia alba dolens*.

It is evident that a series of manœuvres cannot be performed in the uterus, such as had been accomplished, without exposing the patient to some of the slight complications of labor. The fact of having found a local hæmatometria in the living is

rare. Professor Zahn, to whom I mentioned the fact, said that he had sometimes found the phenomenon at the autopsy. The case is doubly interesting—first, the patient demonstrated that *retroflexio uteri fibrosi* is a complication which, so far as surgical interference is concerned, renders the operations more difficult, the more so if the retroflexion of the gravid uterus compromises gestation and labor. The reduction of the uterus is the first indication to fulfil, and it may certainly often be accomplished by a persevering and well-combined taxis. On the other hand we were placed face to face with a case which is such as not to admit of a laparotomy — the indication was urgent to intervene. Now, a laparotomy performed under the circumstances was of a nature to change the statistics of operations for fibro-myomata in a favorable direction.

Second series: Cases where incision was followed by enucleation, partly forced, partly spontaneous.

CASE V.—Miss Sophie P., aged forty-three, unmarried, virgin; has suffered between twenty to thirty years from chloroanæmia, and had small-pox in 1871. Since the commencement of 1884 her menstruations have been painful and abundant. Two years later intermenstrual loss of blood and a discharge of yellowish-white secretion commenced. Since April, 1886, Miss P. has had fearful pains between the umbilicus and the pubes, extending towards the kidneys, and particularly towards the right hip. Dr. Rolland, of Divonne, found a uterine tumor, and put his patient under a palliative treatment,

consisting of sitz baths and astringent injections. He sent her to Professor Vulliet on September 17, 1886.

General condition — thin, face pinched, abdomen perfectly round, as in a six months' gestation. Local condition — cervix dilated to the size of a sixpence; inferior segment of uterus globular. The finger introduced into the uterus feels a hard and elastic tumor; the organ reached two fingers' breadth above the umbilicus. Dilatation — intra-uterine examination reveals a fibro-myoma, a conical portion of which projects into the cavity; and another, much more considerable, is found in the superior part of the posterior walls of the organ. In other words, then, the bulk of the tumor is incased in the uterine muscle, and its point projects into the uterus.

The patient was etherized for the exploration. Profiting by the circumstances, Professor Vulliet washed out the cavity with a solution of corrosive sublimate at  $\frac{1}{1000}$  per cent., and securing the cervix by claw-forceps he split it by two lateral incisions; then sliding a pair of long, curved scissors along two fingers introduced into the uterus he commenced a resection of the tumor at the base of the projecting part; then seizing the top of the new growth by a tenaculum it was drawn down, and the resection was continued until it became circular. By traction the neoplasm came down. The incision was stopped when it was found dangerous to cut higher. Vulliet thought that he could remove about a quarter of the tumor as it was; the rest remained imprisoned in the wall. Instead of trying enucleation,

which was difficult and dangerous on account of the situation of the tumor, it was decided to leave the further elimination to spontaneous enucleation. The cavity was washed out with sublimate and stuffed with iodoform tampons; the dressings were changed every two days. A discharge was established, resembling such as is seen after a normal labor, with this difference, that in it were found pieces of fibrous tissue.

The patient having felt, at different times, expulsive pains, a second examination was made at the end of the month. The greater part of the tumor had entered the uterine cavity. It was drawn outside by forceps, and the attachments which held it back were cut through with scissors, and, after an operation of about half an hour, it was entirely removed. In this case we had to do with a fibro-myoma, partly sub-mucous, partly intra-parietal. The circular incision made around the projecting part of the tumor and the ablation of this part may be considered as a resection. The intra-parietal part, under the influence of expulsive pains, was afterwards pushed into the uterine cavity. It is evident that immediate efforts to enucleate would have failed. By the permanent dilatation, uterine action was produced by the tampons remaining in the organ, which provoked and facilitated the expulsion, at the same time the iodoform cotton assured asepsis and drainage. The patient was seen in December, 1887, and was in perfect health.

CASE VI.—February 24, 1887, Professor Vulliet was called, in con-

sultation, to see Mrs. G., aged thirty-six, married fourteen years, and a multipara. For twelve years the patient has suffered from her uterus, her abdomen gradually increasing in size. Having consulted many surgeons, she is made aware that she has a fibroma of the uterus. Since August, 1886, the menstruation—up to that time regular and normal—has completely stopped, and the abdomen has become more swollen. She said that the doctors she had consulted were in doubt as to gestation. During the week before my consultation she had had, at several times, symptoms like those of the commencement of labor. It was under these circumstances that she summoned Dr. W., who called Professor Vulliet into consultation. After a most careful examination, Vulliet made a diagnosis of a gestation, the fœtus dead, and could not be expelled on account of a tumor. The following day a new labor commenced, and a foot was presented at the external orifice. The extraction offered no difficulty, and a fœtus of about five months, dead for some weeks, was found. To effect delivery the introduction of a hand into the uterine cavity was required. Profiting by the circumstance, Vulliet palpated the tumor between his hands, and thus determined its size, consistence, and, above all, its relations with the walls of the uterus. It was a typical interstitial fibroma of the anterior wall. It extended above to the fundus uteri, and below up to the internal orifice; the cervix, strictly speaking, was normal; the convexity of the tumor faced the serous membrane; in the mucous membrane

there was no marked projection; the neoplasm was hard and resistant, and not elastic, being the size of a large orange. Upon this ground the patient declared that she had decided, for some time past, to undergo a radical operation, and decided to have it performed as soon as she recovered from the abortion.

The size and abdominal development of the tumor showed that an attempt to perform a total extirpation could be obtained only by laparo-hysterectomy; but Professor Vulliet, profiting by the physiological dilatation caused by the gestation, thought his method might be employed after artificial dilatation had been practised. He explained his plan to Dr. W. and myself. It consisted in observing the patient for two days, so as to eliminate all pre-existing infection; then to tampon the uterus to see how this organ would behave in regard to a "tamponnement à demeure" *post-partum*; and lastly, if no fever or intolerance appeared, to perform a resection of the tumor. Without putting aside the accidents which might ensue, Professor Vulliet thought that the dangers would not be greater than those accompanying laparo-hysterectomy. No pyrexia having been found, and the tamponing being perfectly well supported, the operation was performed five days after the abortion. The hand was easily introduced into the uterus, freed from the tampons, and washed out with a solution of sublimate ( $\frac{1}{1000}$ ). Seizing, with the other hand, a button-pointed bistoury, with a hidden blade; it was slipped along the fingers of

the other hand into the cavity of the uterus; a long and deep incision could then be easily made. The hæmorrhage was of no importance; in consequence the cavity was again plugged at once, and the tampons were changed every second day.

The sixth day after the incision Vulliet was again suddenly called to see the patient, who was again in labor. By touch, he discovered a round, flat disc in the vagina, which had been spontaneously expelled from the uterus; he then felt the remaining tumor projecting into the cavity through the gaping of the incision. I administered the ether, and Vulliet proceeded to the extirpation of the intra-uterine portion of the tumor. The cavity was again washed out with sublimate, and completely plugged with iodoform tampons. At three different times, at intervals of six and five days, the patient had expulsive pains, and, with each, pieces were expelled from the incision; they were immediately removed by traction and by section. March 23, the patient was completely delivered of this tumor, which she had carried for twelve years. The uterus was large on account of the modifications in its structure, caused by the tumor as well as by gestation. Two months later the patient possessed a normal uterus, fit for conception and gestation. We have often seen her since, and she was never better in her life.

CASE VII.—Mrs. S. B., aged forty-six, married, a confinement in 1871, has had menstruation three times at the commencement of gestation, an abortion at six weeks in 1881. She

dates her trouble from 1879. At this time she experienced a malaise in the entire uterus, and had vomiting as if pregnant. Menstruation was before this irregular, became, during the last seven years, so abundant that it stops only for a few days; constant dysmenorrhœa, severe pains in the kidneys and abdomen, troubles in micturition, yellowish-white discharge. In 1884 Mrs. B. came to Geneva to consult Dr. D. Professor Vulliet, who was by chance at this gentleman's house, removed a polypus, as large as a small mandarin orange, from below the inferior segment of the uterus and lodged in the vagina. This operation relieved the patient, but soon after bloody discharges appeared again. She was then advised to leave off her occupations, and was put under treatment by ergotin. During the winter the discharge was considerably diminished and the suffering less, but all commenced again in the spring, when Mrs. B. began once more to work. She was sent to Professor Vulliet, in January, 1887.

The uterus was as large as at a four months' gestation, but perfectly regular in form. Four *séances* of dilatation by tampons were sufficient to enable us to see five or six centimetres deep into the cavity, aided by an intra-uterine speculum. Nothing was seen except an intense inflammation of the mucous membrane. By examination with two fingers and by lowering the organ, a tumor was distinctly felt, having the dimensions of an orange. It formed a slight vault in the cavity, but considerably more so in the abdomen, in the region of the right horn. Incision

two and one-half centimetres deep; abundant hæmorrhage, but lasting a short time. The finger, inserted immediately into the incision, felt a tissue which could deceive nobody; it was the fibroma itself that had been cut. Irrigation with corrosive sublimate; tamponing; ergotin; electricity. After the second day labor pains announced the expulsion; the third day intra-uterine examination having shown fibrous masses in the uterus, the patient was put under ether. These masses were seized and excised with scissors; about forty to fifty grammes of tissue were removed. Some *débris* existed in the gap of the opening. Continuation of tamponing and treatment.

Labor again began in three days. The patient is etherized. By the touch, the remains are found forming a hard tumor very intimately united with the uterine wall. Vulliet, with a pair of strong forceps, armed on the inside of their blades with sharp points, seized the fibrous masses and by a movement of rotation was able easily to enucleate them; he removed this time fifty to sixty grammes of fibrous tissue. Intra-uterine touch, combined with abdominal palpation, showed that the uterus was completely freed of all new growth. This patient was a woman who had already had a fibroma removed; it was consequently just to suppose that there still might exist others, but the uterine walls were of normal consistence and everywhere homogeneous, so that nothing appeared suspicious. It is probable that, when several fibrous nuclei exist, the great development of one prevents

development of the others; but if spontaneous elimination or an ablation takes place, thus removing the tumor, the others may grow and produce the same train of symptoms. Vulliet considered this fibro-myoma as intra-parietal, having two poles—one sub-mucous, the other sub-serous. The muscular tissue must have been very thin, but had not lost its contractility; spontaneous elimination was a proof of this fact. January 23, we saw the patient, who was exceedingly well; menstruation was normal, a fact which, the patient said, had never before occurred in her previous life.

CASE VIII.—Mrs. L. M., aged fifty, married; six normal deliveries, one abortion with good termination. Very abundant menstruation, regular until November 3, 1887. Very little whites. For about three years has had pains in the kidneys, feeling of weight in abdomen, troubles of the bladder and rectum. November 3, 1887, patient was suddenly taken with hæmorrhage when getting up. Since then, has had bloody discharge, which stops only for a short time; the commencement of each hæmorrhage is announced by pains in the abdomen. Dr. B., having recognized the presence of a uterine tumor, called Professor Vulliet in consultation on April 5. An operation was decided on, and the patient entered Professor Vulliet's private clinic on April 8. General condition—tall, well built, thin, with marked anæmia; patient states that she weighed ninety-seven kilos. in October, 1887; she has sensibly diminished in weight. April 9, Vulliet had the first *séance* of dilata-

tion by tampons, a second was made the 10th, a third the 11th. On the next day, the uterus was open enough to allow of the introduction of four fingers into the cavity of the organ. Local condition—by abdominal palpation a fibrous tumor is felt, encased in the anterior wall; it projects into both abdominal and uterine cavities; especially at its inferior part; the posterior wall of the uterus is thin. Diagnosis—fibrous tumor of the uterus.

The operation took place April 12. Vulliet commenced by withdrawing about thirty tampons from the uterine cavity; an irrigation of five litres of corrosive sublimate ( $\frac{1}{1000}$ ) was then made; the vulva was held apart, and the uterus was drawn down; a "boutonnière" was then made with scissors in the uterine mucous membrane; it was then opened up six to seven centimetres, and the neoplasm was thus brought into view. The finger was then introduced so as to perform enucleation, which was remarkably easy on the entire periphery. As the uterus was hard to draw down, the finger could not reach the upper limits of the tumor to accomplish the enucleation, so it was decided to amputate with scissors as high up as possible, when the cavity, resulting from this operation, could be stuffed with tampons. This amputation was difficult, and brought away the lower part of the tumor weighing about two hundred grammes. The two following days the tampons were renewed after irrigation. On the third day there was a slight rise in the temperature, and it was feared that the remaining

portion had been infected, so Vulliet removed from the surface about fifty-grammes of tissue which presented no signs of decomposition. On the eighth day after the operation, having noticed that the tumor had considerably descended, Vulliet decided to end the extirpation, which, thanks to the spontaneous enucleation produced since the last *séance*, was very easy, for the finger reached the superior limits. This portion weighed two hundred and seventy grammes. Mrs. M. was well at the end of eight days without accidents.

We have here another example of a tumor for which, on account of its size and situation, laparotomy was indicated, and which was extirpated by the natural passages without mutilating the uterus.

Third series: Cases of resection followed by neither enucleation nor forced enucleation.

CASE IX.—In August, 1884, Vulliet operated at the Maternity on a fourth case. Mrs. G., aged fifty-three, complained for ten years of abundant loss of blood every two weeks. Has always had anæmia, is feeble, and the gravity of her condition justified energetic intervention. He examined by intra-uterine touch and discovered an interstitial fibroma situated in the posterior wall; the maximum of development was a little to the right of the median line. He made an incision the entire length of the uterine wall about a centimetre deep; on complication. The patient remained in bed two weeks and then left for the country. Two weeks later she returned to the Maternity. Vulliet did not see her, and it was Dr.

Fontanel, the assistant of the *service*, that received her. It was learned from him that no hæmorrhage appeared, and that the patient felt and appeared better. Since that she has not come to the Maternity, feeling probably too well to come for her own interest. In February, 1887, we looked her up. Mrs. G. was perfectly well; she attends to her occupations as schoolmistress. Her uterus is double the normal size. Vulliet believes that there exists another fibrous tumor which keeps it thus enlarged; but this tumor is probably sub-serous, and gives rise to no symptoms.

CASE X.—Mrs. M. D., aged forty-six; three confinements, one abortion, which kept her in bed six months; she cannot tell what the complication was; no heredity in the family; domestic troubles. Menstruation regular until 1883. Since this date, discharge more frequent and very abundant, every two or three weeks lasting eight to ten days. Subjective symptoms: feeling of weight and discomfort in abdomen and kidneys; pains sometimes sharp. In 1884 the discharges of blood became more abundant; to the metrorrhagia are added white and yellow discharges; micturition frequent; enlargement of abdomen. She underwent different treatments, principally cauterization of the cervix. Professor Vulliet was consulted on August 24, 1886.

General condition: Uterine facies, thin, projecting abdomen, digestive trouble, anæmia. Local condition; Abdominal tumor situated in the middle, as large as a six months' and a half uterus, hard and resisting; enor-

mous cervix, its entire left lateral segment is considerable. The external orifice assumes a semi-circular shape, and is pushed to the left, on account of the projecting tumor; it admits two fingers, which penetrate easily to a distance of two or three centimetres. All movements given to the cervix are reproduced by the tumor. The cavity measures eighteen centimetres. By the introduction of large sounds, drawing the organ down and bimanual exploration, the tumor is found to be interstitial, situated in the right lateral wall. Vulliet was struck by one peculiarity; this was the softness of the tumor. He commenced at once the dilatation of the cavity with iodoform tampons. After three or four *séances*, ten centimetres into the cavity could be seen by means of an intra-uterine speculum. Intra-uterine touch gave the exact relation of the new growth to the walls. It was a large tumor, entirely abdominal. The uterus had kept its shape, notwithstanding that the right horn was evidently more developed than the left. As high up as could be felt, the left wall was thinned. There was no projection into the cavity. Vulliet made a longitudinal incision, in order to loosen the internal layer, at three different times, allowing a repose of two weeks between each *séance*. At the same time, he ordered faradization and ergotin, so as to push the neoplasm to the side weakened by the incision. The last incision was made about the middle of October. A watery running was produced. Some weeks after, the fibroma had gradually diminished. The difference in volume

was more marked in the bilateral and antero-posterior diameters. The discharges stopped, the patient became gay, strong, and active. The abdomen had its normal dimensions. The incisions had not been followed by spontaneous enucleation, but they had caused, with the aid of electricity, an absorption and a remarkable hæmostatic effect.

This continued for three months, when suddenly, about the beginning of January, without any known cause, during the absence of Professor Vulliet, the patient was taken by a series of *malaises*. The abdomen became large and painful on pressure; no vomiting, cephalalgia, or fever. Upon his return, Vulliet found the symptoms very different from those in August; the abdomen had become greatly swollen. The tumor reached above the umbilicus. By abdominal palpation, fluctuation was felt in certain parts of the neoplasm. Little by little the inflammatory symptoms subsided, but the tumefaction remained. The diagnosis was undecided. Was it an œdema of the fibroma and the formation of a cyst? Finding a spot where the fluctuation appeared pronounced, an exploratory puncture was made; this gave no result. But the fluctuation becoming more evident and more extensive, a second puncture was made fifteen days later; it gave issue to four litres of non-sticky, grayish-yellow pus. Following this second puncture the patient had a few days of relief and repose, but the liquid soon reappeared. Towards the end of February the fluctuation was again evident in the entire tumor, and signs of absorption showed them-

selves in a slight pneumonia, probably septic. In presence of these alarming symptoms the urgency of an intervention was felt. But what intervention? Laparotomy with total hysterectomy could not be thought of, for, on one hand, the patient was very feeble, and could not stand the shock; on the other hand, the tumor was too large, too diffused, and its adhesions were probably too numerous for one to count on a radical operation with any chance of success. Professor Vulliet decided to make an exploratory incision, and, on account of the circumstances, to fix the walls of the cyst to the lips of the abdominal wound; to empty and scrape the cavities after having destroyed the partitions dividing them, and so try to procure a fixation of the fluid tumor by a consecutive drainage.

The patient was etherized on Feb. 28, 1887. Having made an incision through all the abdominal tissue, ten centimetres in length, Vulliet reached the uterus, fastened it by sutures to the lips of the abdominal wound; then an incision was made in the uterine wall, from which twelve litres of nasty pus was withdrawn. The cavity was washed with a solution of corrosive sublimate ( $\frac{1}{1000}$ ), and a drainage-tube, of one and a half centimetres in diameter and fifteen centimetres in length, was introduced. Every day the cavity was washed with an antiseptic solution. As the cavity diminished in size a smaller and shorter drainage-tube was inserted and a larger one removed. The patient got well with astonishing rapidity. After the month of May she resumed her occupation. At this

time she experienced no discomfort, and all physiological functions were normal. The abdominal portion of the tumor is only noticed in the part where it is fixed to the wall; the cervical portion is considerably atrophied. Mrs. D. may be considered as cured; she is forty-seven; the menopause will soon render a new growth of fibromata improbable. The history may thus be summed up:—  
1st. A fibroma, probably œdematous from the commencement. 2nd. Œdema is reduced under the influence of the incisions, ergotin, and electricity. 3rd. Reappearance of œdema when the incisions were cicatrised. 4th. Formation of a cyst in the tumor. 5th. Puncture leading to suppuration of the cyst.

I have quoted this case, even though the intervention did not cause expulsion of the tumor by the natural passages. I think it proves that œdema and cystic degenerescence tend to produce conditions in which one cannot count on spontaneous expulsive efforts, which are absolutely necessary after incision. But, I believe that, even in a similar case, Vulliet's operation by the natural passages and by the interior of the dilated cavity, may prove of great service. This patient was relieved of a tumor to the same extent as if a sub-vaginal amputation of the uterus with fixation of the stump in the wound had been performed. It matters little whether the uterus be fixed by the edges of an incision made into the wall, or by the surface of amputation, if the remaining uterine mass cause neither trouble nor pain and its volume is insignificant; besides,

the dangers were not as considerable as if laparo-hysterectomy had been performed. It may be advanced that we produced infection by the incisions and by punctures. In reply I would say that the uterus was already the seat of an ichorrhœa and that the infection could have been produced as well by the traumatism of laparotomy as by the operations we performed.

Fourth series, where there was only dilatation without incision.

CASE XI.—Mrs. L. R., aged forty-six, married; three normal deliveries, one abortion; menstruation regular until 1885, when the discharges became so abundant that there was an interval of only two or three days between them; dysmenorrhœa intense; hæmorrhagia commenced ordinarily by vomiting.

February 17, 1887.—Professor Vulliet was called into consultation by Dr. R. Mrs. R. was in a very grave condition. During the day she had had an attack of uræmia, as well as the vomiting characteristic of intestinal obstruction; much albumen in the urine. Upon examination Vulliet confirmed Dr. R.'s diagnosis. These troubles were due to compression by a tumor completely obstructing the pelvis, pressing the rectum and bladder against the bones. The fingers could not be introduced behind the symphysis to find the cervix, which was pushed high upwards. Tympanites did not permit of abdominal palpation, so that, in short, it was a case where an exploration could not be obtained, and which demanded an urgent intervention. The uselessness of the efforts at reduction led to the

conclusion that the mass was fixed by adhesions. Nevertheless, it was decided to try vaginal and rectal irrigations and cold applications to the abdomen.

When the patient was better she entered Professor Vulliet's private clinic. The tumefaction had not diminished much, and to save the life of the patient an operation was necessary, which presented itself under very bad conditions. The patient was etherized, Vulliet not wishing to operate without trying reduction. He was about to give up, when it seemed to him as if the tumor was slightly displaced. He commenced again, and suddenly the fundus uteri swung above the promontory, and at the same time the cervix came into place. The tumor reduced reached to the umbilicus. This reduction changed the physiognomy of the case. Extirpation by laparotomy might have been tried, which presented no special difficulties, but Vulliet preferred to have recourse to dilatation. When the uterus was largely dilated he could find nowhere a circumscribed tumor. The entire organ was hypertrophied; the walls were uniformly thick. It was probably the kind of new growth described by Virchow as general hyperplasia of the uterine fibro-muscular tissue. A Hodge's pessary was introduced to prevent another retroversion. This woman is at present well. The uterus has considerably diminished in volume.

In this case if reduction had not been accomplished, it would have been necessary to perform sub-vaginal amputation of the uterus, while, when

once reduction was accomplished, the case became entirely different; the urgency of operating disappeared, and tamponing availed to bring about a considerable diminution of the hyperplasia and its symptoms. Dilatation in a like case replaces an operation which gives many chances for a fatal ending.

CASE XII.—Mrs. A. H., aged thirty-three, married, multipara, anæmia for several years. In 1882 she received bad treatment from her husband—kicks, etc. Since then she experiences continual contractions in the abdomen, constipation, frequent nausea. Menstruation always regular. Since 1883 she has had watery discharges and whites. She came to the Polyclinic in September, 1887. She had not consulted a doctor. General condition: Well built; anæmic; abdominal facies. Local condition: Projecting abdomen; voluminous uterus, extending four fingers' breadth above the umbilicus, situated rather to the left; cervix normal, closed; anterior *cul-de-sac* relatively free. In the posterior *cul-de-sac* is felt a round body, with an even surface, smooth and voluminous. Sound enters fifteen centimetres deep. Dilatation with laminaria and prepared sponges, combined with iodoform tampons; these were well supported. In six days two fingers could be introduced into the uterus just above the internal orifice. At this point the anterior wall appeared quite free. In the posterior wall is felt a convex tumor, hard and fibrous, commencing just above the internal orifice. As I was alone I could not bring down the organ; and as the cavity was very deep (fifteen

centimetres) for exploring with only two fingers, I continued the dilatation by introducing eleven iodoform tampons, each as large as a walnut. Vulvæ being obliged to leave for a certain time, and not wishing to undertake the case, I stopped the dilatation for the time being. The patient returned in November. At the examination I was astonished at the diminution of the tumor—the uterus had fallen three fingers breadth below the umbilicus. Thinking that this happy result might be due to the intra-uterine iodoform tamponing, I recommenced the dilatation.

November 9.—Laminaria.

November 10.—10 iodoform tampons in the cavity, and prepared sponge.

November 11.—15 iodoform tampons and large prepared sponge.

November 12.—19 large iodoform tampons without sponge.

November 13.—3 laminaria, separated by tampons.

Before each *séance* of tamponing, intra-uterine irrigation with corrosive sublimate solution. At the end of five days the dilatation was at the same point as when I left off the first time. Having kept this degree of dilatation for four weeks I left the patient at rest, and commenced again about the 15th January. At each dilatation the uterus was notably reduced in size. It augments, it is true, in volume at the time of menstruation, but afterwards it comes back to the proportions it had before. In spite of these relapses a regular reduction in volume was obtained, and the greater part of the discomforts as well. Mrs. H. can continue her daily occupations.

I have mentioned this case although there was no surgical intervention to extirpate the new growth; it supports certain ætiological considerations as to fibro-myomata that I mentioned in the commencement of this memoir. This is not the only one; in the greater number of cases that underwent tamponing, the volume of the new growths diminished very much. The fibromatous tumor seems to be a kind of goître of the uterus on which idiform appears to act in the same way as in cervical goître.

CASE XIII. — Mrs. P., aged forty-two, pluripara, consulted Professor Vulliet in July, 1885, for a large fibroma which had reached the level of the umbilicus some time previously. She lost blood in abundance during and between her periods. The professor performed dilatation; the hæmorrhages stopped. In August and September the menstruations were normal. In October the hæmorrhages appeared again, and in December she came and begged to be operated upon; being poor, she could not be detained at home by her sickness.

Vulliet reports its further progress as follows: "Having already performed dilatation, I had been able to foresee that it would be very easy to obtain, in a short time, a large dilatation of the uterus. This consideration, as well as the splendid results that enucleation had given me, encouraged me to have recourse to this method. I regretted, as will be seen later on, having changed the rules which had guided me before—rules, in accordance with which, I had applied my operation only in the case of small or medium-sized myo-

mata. In this case I tried to operate in a space measuring 18 centimetres, and on a uterus reaching to the umbilicus.

On November 8th I commenced dilatation; on the 12th it was so complete that I could introduce four fingers into the uterus. By bimanual palpation I could distinctly feel a fibroma as large as a child's head, situated at the fundus of the uterus in the superior and posterior walls. Being absolutely interstitial, it caused no projection in either the interior or exterior of the organ. I cut down on it, making a long incision into the capsule; this incision was not deep; no complication. Two days later the patient entered into labor which lasted two hours and then stopped. The next day I introduced my finger into the uterus I felt a little mass of fibro-myomata forming a hernia into the half-opened inferior part of the incision. I introduced new tampons, hoping to produce a spontaneous delivery. Labor commenced again during the day, but was feeble. On the next day things were the same. The woman having lost blood during two years was very weak. On the evening of the 16th of November there was a slight elevation of the temperature. On the morning of the 17th, the fever having increased, and the patient's expression presenting a certain degree of alteration, I foresaw the danger. Introducing the entire hand into the uterus, I made fruitless efforts to seize the new growth, and succeeded in drawing down only insignificant fragments. Placing the patient in the genu-pectoral position,

with the aid of my intra-uterine speculum I could see that part of the new growth which formed the hernia in the incision, but could get no further. My inability to extract or enucleate the growth resulted from the fact that the field of operation was situated too high up. I could not reach it either by downward traction or by pressure from above. I was certain that I could easily operate on the entire neoplasm if it were only three or four centimetres lower down, for I had every facility for manœuvres in the breadth of the cavity. I proposed abdominal hysterectomy, but the patient having had shooting pains, absolutely refused to submit to the operation, hoping that the affair might terminate by delivery. She died in the night of the 17th.

I will not argue the point that hysterectomy would not have probably given another result, for the patient, bloodless and worn out, presented the most unfavorable conditions for a laparotomy. I restrict myself to the statement that the only fatal case occurring after the application of my method is just this one, where I transgressed the limits that I had proposed before my first publication, and I draw from this case this conclusion—that enucleation must not be attempted when the fibroma is situated too high for one to force its extraction at the first sign of infection."

CASE XIV.—Miss R., of Lyons, aged sixty-five, virgin, menstruated at twelve years; health excellent up to the age of forty-five. She then noticed that she was getting stout; she performed palpation on herself,

and felt some hard and movable masses in her abdomen which protruded on each side of the linea alba, and reached, she said at this time a hand's breadth above the pubes. Having no pain, she did not consult a doctor. At the age of fifty-two she was suddenly and without any appreciable reason attacked with peritonitis, which appears to have been severe. She was already convalescing from this peritonitis when she was attacked by an acute affection of the chest, which put her life in danger. This complication is important. I take note of this pleurisy or pneumonia, for it seems to have given rise to embolism, as will be seen later on. Miss R. was in bed 63 days; she never recovered her former health; her menstruation, which had been normal until the peritonitis, never once appeared again. As she suffered from her abdomen, she was sent by her doctor to Lyons. The specialist consulted, diagnosed a fibroid tumor and advised subcutaneous injections of ergotin. This treatment produced no improvement, but the patient, although gradually becoming more feeble, did not try any other. She came to Geneva, August 6, 1888, to consult Professor Vulliet.

The examination showed the following: a pale, nervous woman, with cachetic aspect; she walked with difficulty on account of pains and abdominal weight; she lost a clear, transparent, yellow liquid in great quantity. Abdominal palpation and vaginal touch revealed a median tumor, embossed, of irregular consistence, feeling in certain parts as hard as stone and, wherever the finger pressed, arterial

pulsation could be felt; it reached the umbilicus, the fundus uteri formed a ball as large as an orange and extended on both sides in the form of horns; the horns came within about three centimetres of the superior anterior iliac spines, and both ended in a swelling as hard as bone; the tumor was slightly movable, causing the posterior cul-de-sac to move with it. It was impossible to introduce a small whalebone sound more than two centimetres; this caused a severe hæmorrhage.

The patient entered Professor Vulliet's clinic, and dilatation was practised. This was extremely difficult and abortious, and was performed very slowly. In the first phase (six days) only a progressive catheterism with soft sounds was performed. In the second phase sticks of laminaria were twice introduced. In the third phase dilatation was produced only by tampons. At the end of fifteen days the cavity was widely open and admitted a finger and blunt curettes, as well as irrigation cannulas of large dimensions. There was no fever and the patient felt better, as if the dilatation alone had produced relief. *Examination by intra-uterine touch:* The patient having been anæsthetized, the professor introduced his finger into the uterus; it entered with ease, but, as the tumor did not descend either by pressure from above or by traction by forceps, there was no means of penetrating more than five or six centimetres into the cavity, which measured twelve centimetres in depth; as far as the internal orifice the consistence of the uterine walls was normal and supple, but from this

point the finger felt as if it penetrated into a box of bone or stone, so great was the rigidity of the walls; the organ could not be bent or moved in any direction—it was perfectly rigid; in front and in the back only was there a certain suppleness. The dilatation was obtained only by means of these two zones; the rest did not seem susceptible of expansion. The entire anterior face of the walls of the parts accessible to the finger were covered by voluminous buds. A curette being introduced brought out about 100 grammes of buds, mixed with friable pieces, which appeared like degenerated fibroid tissue. Vulliet was about to stop the scraping, which did not bring anything else away, when he felt the instrument touch a hard surface, which gave the same sensation as a vesical calculus might give when touched by a metallic sound. It was impossible to withdraw the smallest piece capable of showing the nature of this hard body. The uterus was well irrigated, and then tampons were introduced. Forty-eight hours after, attempts were again made, which withdrew a small quantity of a crushed and shapeless calculus. A microscopical examination was made, and it was found that there was a new growth, composed of fibroid tissue, having undergone calculous degeneration, and complicated with an endometritis.

It is useless to describe in detail the numerous remedial measures adopted to combat this disease. During six weeks this patient was placed on the operating table every second day, and, by means of the

curette and forceps serving as lithotrites, we extracted more than 250 grammes of *real stone*. Sometimes this was only *débris*, in the form of grit; sometimes irregular pieces, of which the largest was as big as an almond, were extracted. Some seemed to have been broken by the operation, while others produced the impression of an independent nucleus, offering the shape of little shells, and retaining on their surface certain imprints—due probably to the moulding in some recesses of the shell; several must have been encased in the wall. As these foreign bodies were removed the uterus became smaller; at the end of a month it did not reach above the symphysis. The region of the horns was then attacked. Their extraction was executed in the same manner as for a calculus in a canal. The first extracted were from one to two centimetres in diameter; the others, as they approached the more external parts of the horns, were smaller. I collected all the *débris*, and gave it to Professor Zahn. At the end of six weeks' treatment the uterus was in its normal condition; the consistence everywhere the same. Neither the sound nor bimanual examination revealed the existence of a foreign body. In spite of this long series of operations the patient gained her strength and flesh, and these multiple extractions had caused only slight sufferings compared with those occasioned by any uterine dressing, even in a most tolerant uterus.

If we take into consideration the facts established by this case, we find—1st, general augmentation

in the volume of the uterus; 2nd, an infiltration or a calculous deposit in the interior of the walls of the organ; 3rd, fibroid tissue in abundance. These facts, as well as a microscopical examination, lead us to diagnose multiple interstitial fibroma or fibroid infiltration, having undergone calculous degeneration. Scraping opens the capsule, and by the opening thus practised the extraction of the calculus deposit is mechanical. A wide and permanent dilatation by tampons can alone permit such an operative procedure, otherwise abdominal hysterectomy would have been resorted to, and this presented itself in very bad conditions. This patient, who had recovered her health entirely, died six weeks after her recovery in a most sudden manner; she presented no abdominal symptoms and no swelling of the legs. The family would not consent to an autopsy, so that nothing could be learned as to the nature of the cause of death.

CASE XV.—M. T., from Nice, aged forty-four. Menstruated at thirteen years, the menses being always abundant, regular and without pain; duration three days. Had her first child in 1869; breech presentation, with normal post-*puerperal* stage. In 1879, miscarriage at seven months, *fœtus* dead; recovered without any complication. In 1888, miscarriage at three months; recovery uncomplicated. Infectious troubles of the genital organs. For the last three years the patient has felt tired, had pains in the back, obstinate constipation. For two years the menses have been very abundant, lasting eight

days; between the menstrual periods leucorrhœa is excessive, being sometimes tinged with blood. Quite severe and repeated uterine colics occur.

Examination showed a crest-shaped tumor situated on the cervix; the Nabothian glands are increased in volume. The uterus is the size of a three month's gestation, in normal position and movable; the adnexa appear to be normal. Operation on March 9, 1893. Excision with scissors of the small tumor on the cervix and another situated on the cervical canal, in order to determine microscopically their nature, which proved to be benign. March 9, uterus packed with iodoform gauze; March 10, a laminaria was introduced. After dilatation, a fibrous polypus was found in the uterine cavity about the size of a large pigeon egg.

March 11, etherization; bilateral incision of the external orifice. Two fingers were introduced into the cavity and about two-thirds of the polypus were removed by morcellation, as it was found that the growth could not be removed entirely from its bed. The uterine cavity and vagina were packed with iodoform gauze. Suture of right incision of cervix, which bled freely. Slight expulsive pains were noticed by the

patient. The after results were long. A foetid discharge appeared, lasting for two weeks, necessitating daily intra-uterine irrigations of a carbolic acid solution and iodoform gauze dressings. Little by little all symptoms subsided. The uterus came back to its normal size and the patient, who was much debilitated, regained her health and strength, leaving the clinic in excellent condition.

*En résumé*, I would say that Prof. Vulliet's method is indicated wherever there exists a marked disproportion between the depth of the uterine cavity and the greatest diameters of the tumor; by it a radical cure of fibromata can be brought about, when there is a layer of contractile tissue on the peripheral side and when the growth is not undergoing degeneration, altering its consistence; that when conducted under all antiseptic precautions it is without danger; it is conservative surgery, as it does not necessitate hysterectomy; the dilatation of the uterus exercises a marked hæmostatic action; and, lastly, iodoform tampons appear, as local applications, to cause a permanent reduction in the size of the growth.

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