

On the corpus Morgagni, with reference to diseases of the testicle / by S. Osborn.

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by

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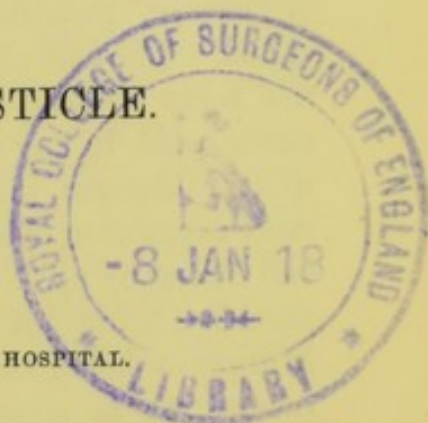
ON THE CORPUS MORGAGNI,

WITH REFERENCE TO

DISEASES OF THE TESTICLE.

By S. OSBORN,

SURGICAL REGISTRAR TO ST. THOMAS'S HOSPITAL.



THE frequency with which some parts imperfectly developed or the remains of foetal structures become the subject or starting point of disease is seen exemplified, on the one hand, in cases of spina bifida and encephalocele, and, on the other hand, in cases of umbilical tumours and tumours of thymus gland.

Confining my remarks to the testicle, the object of this paper is to show that besides those diseases usually ascribed to imperfections of development, other diseases of the testis are due to morbid affections of foetal remains.

Under the first heading, that of imperfections in development, are found congenital hydrocele, also congenital hydrocele of the cord, and diffused hydrocele of the cord, all of which are due to imperfections in the proper development or closure of the processus vaginalis. This is universally allowed and not to be disputed. Under the second clause, viz., morbid affections of foetal remains, it is necessary to consider whether the hydatid of Morgagni, besides being usually the cause of encysted hydrocele of the testis, and also forming a variety of hæmatocele, is not occasionally the seat of solid tumours; and also whether the Müllerian duct will not be found to be the origin

of other encysted hydroceles of the testis or cord, according to the position of the dilated portion.

The hydatid of Morgagni is the name given to a small oval body situated between the globus major of the epididymis and the body of the testicle; attention was first called to it by John Baptist Morgagni in his work on 'The Seats and Causes of Disease,' published at Venice in 1761, and after whom it is called. The name by which it is familiar to us is to be regretted; the term hydatid is associated with an animal parasite and never used in any other acceptation; such, however, was not what Morgagni intended to signify, but merely a vesicle, the same expression of hydatid, meaning a vesicle, being used in Italy and Germany up to the present day; the term hydatid, meaning a parasite, being but of late introduction into medical literature. Morgagni being the first to draw attention to this body, it is interesting to state his opinions, more especially as they will bear on remarks which will have to follow. The subjoined extracts are from post-mortem records in his work mentioned above.

In Letter 4, Article 30, he states that—

"Within each tunica vaginalis an hydatid existed which was almost detached; and the fluid with which these vesicles were distended did not coagulate by heat, but after evaporation a thin pellicle was left in the vessel."

In Letter 43, Article 17:

"The left side of the scrotum was tumid. Beneath the thickened tunica erythroides (cremaster muscle) and tunica vaginalis, and within the enlarged cavity of the latter coat, I found a serous fluid of a yellowish-brown colour. The testis appeared elongated rather than thickened, and the epididymis was unquestionably longer than it naturally is. I observed a small fimbriated substance hanging from the albuginea, where it invested the testicle very near the larger globe of the epididymis; and this fimbria I considered the relic of a ruptured hydatid, especially as not far from it an entire hydatid protruded from the same coat."

Again in Articles 18 and 19 of the same letter:

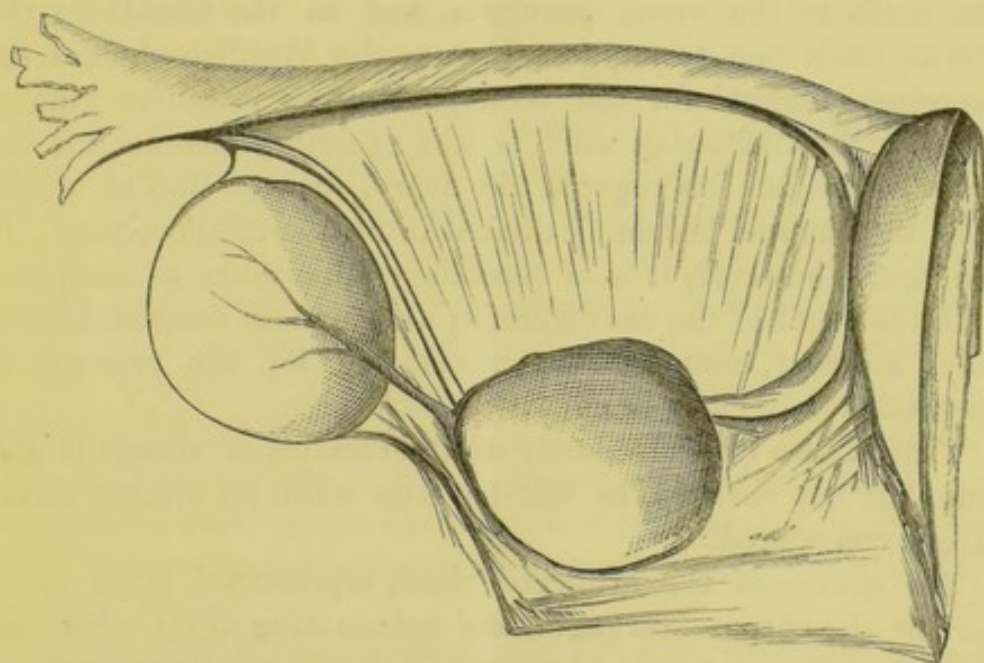
"Between the tunica vaginalis and albuginea on that side I found a small quantity of serous fluid, the colour of urine.

"The albuginea was rugged from very small tubercles, and in consequence of observing some hydatids in the same coat which had not quite burst, I was led to suppose that the tubercles were the remains of hydatids."

"The same tunic contained a fluid resembling water in which fresh meat has been washed; and from the larger globe of the epididymis a small hydatid hung

by a slender and short peduncle, and a small blood-vessel could be perceived passing through it."

Such is the description given by Morgagni, and from this it is evident that his view of the nature of this body was practically correct,—that true hydatids or parasites have occurred in the testicle is proved by a case brought under the notice of Sir Astley Cooper by a student of St. Thomas's Hospital, and of which he speaks at p. 152, in his work on the 'Structure and Diseases of the Testis.' Small bodies or vesicles similar to this hydatid of Morgagni, in being the remnants of foetal structures and in also being occasionally the seat of disease, are met with in females, situated in the broad ligament between the ovary and fimbriated end of the Fallopian tube, and classified under the heading of extra ovarian tumours. The subjoined diagram,



Specimen showing Cyst between left Fallopian Tube and Ovary. From Prep. F. F. 1, in St. Thomas's Hospital Museum.

taken from a preparation in St. Thomas's Hospital Museum, is an excellent example of dilatation of this vesicle in the female. Another diagram of such a condition is given at p. 30, in Mr. Spencer Wells's work on 'Diseases of the Ovaries,' in which also he describes one as attaining the size of twice that of an adult head.

However, it is now known that this body which Morgagni believed to be a new formation is the remains of a foetal structure, and for which information we are indebted to J. Müller, who, in 1835, published some remarks upon the development of the genital organs, in which he demonstrated the existence of a canal, which has since been called after him the Müllerian duct, the upper part of which forms the vesicle known as the hydatid of Morgagni.

Concerning the use of this Müllerian duct we know little. In the male, as far as we are at present aware, it is of little importance, whereas in the female it undergoes a process of higher development, forming ultimately the Fallopian tube with its fimbriated extremity, and also part of the body of the uterus.

That it is a channel with an external opening, terminating in the male at the sinus pocularis, and in the female in the uterus, leads one to suppose that as the Wolffian duct is the excretory channel for the Wolffian body or primitive kidney, so may the Müllerian duct be the excretory channel for the ovary or testis. As regards the ovary, such we find to be the case, the channel becoming dilated into the Fallopian tube; in the testis, however, it is of secondary importance as compared with the canal of the vas deferens; a permanent communication may, however, remain, thus accounting for the presence of spermatozoa in cases of encysted hydroceles.

That it also consists partly of the remains of vessels is also true, but not entirely, as will be seen when its minute structure is considered.

The course of the Müllerian duct, represented at its upper part by the corpus Morgagni, and terminating at its other end in the sinus pocularis, becomes difficult of demonstration between these points. But in some cases it can be partially traced, and runs from the globus major between the epididymis and the testicle in the digital fossa downwards towards the globus minor; beyond this it is impossible to trace it, but for a certainty the obliterated remains of the Müllerian duct should be enumerated amongst the other things entering into the formation of the spermatic cord.

The corpus or hydatid of Morgagni is a constant structure, and no accidental cyst, as some authors describe. Its seat is

between the summit of the globus major and the body of the testicle, between the visceral layer of the tunica vaginalis and the tunica albuginea, and is attached to the testicle by a peduncle more or less large, sometimes measuring as much as three quarters of an inch in length; this peduncle may rupture, and the vesicle becoming detached form the exciting cause of the most common form of hydrocele, viz., that of collections in the tunica vaginalis. Of this Morgagni was aware, but he erred on the other side in attributing all cases of hydrocele to this origin, as will be seen from this extract from Letter 43, Article 16:

“Indeed, when I attentively review all my observations in reference to hydrocele, I find none which does not appear to have originated from ruptured hydatids. In each of them some hydatids were still remaining either in a perfect state or half lacerated, or some traces of them were visible. Hydatids are sometimes found within the tunica vaginalis even when no effusion has commenced; but if they burst and afterwards continue to secrete fluid, undoubtedly they must produce hydrocele.”

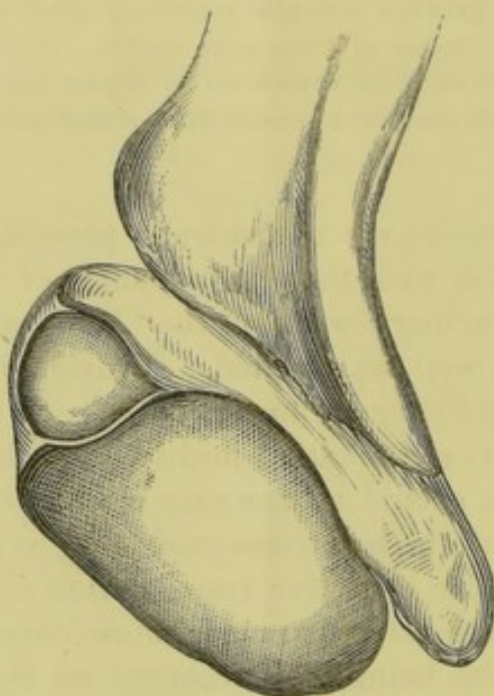
Two or more vesicles are occasionally present, their situation being in connection with the globus major of the epididymis, and at p. 186 in Curling's work on the ‘Diseases of the Testis,’ such a condition is well represented. Multiplicity of vesicles is found with greatest frequency on the left side; in one out of every ten left testes under examination multiple vesicles are generally found. Why such should be the case is unknown without the increased length of the left testes producing venous congestion tends also to produce excessive transudation of serum, for the same reason that vaginal hydrocele is more frequent on that side also; varicocele also being most frequent on the left side from the same cause.

Concerning the structure and contents of the corpus Morgagni, it will be found to consist externally of the visceral layer of the tunica vaginalis covering the proper fibrous cyst which has an internal lining of tessellated epithelium, contained within which is some molecular matter, whilst between the tunica vaginalis and the cyst-wall are numerous fine blood-vessels.

Having now described the anatomy and the structure of the corpus Morgagni, and its course as continued on into the Müllerian duct, the practical application of it to the subject of this paper remains to be considered as regards those diseases

to which it is liable. These may be classified as fluid or solid tumours, characterised in the one by a work of secretion, in the other by a formative process.

Fluid collections in the corpus Morgagni may be of so small a quantity as not to be discernible during life, and therefore give rise to no inconvenience, and only attract attention after death. Larger collections of fluid in the same body form the ordinary encysted hydrocele of the testis, and of this specimens may be seen in all stages of gradation. A drawing of a large encysted hydrocele, representing E. E. 69 in the museum of St. Thomas's Hospital, is figured at Pl. XI, fig. 3, Part II, in Sir A. Cooper's work on the testis, and the subjoined diagram from E. E. 70



Specimen showing Encysted Hydrocele in position of Corpus Morgagni of left side. From Prep. E. E. 70, in St. Thomas's Hospital Museum.

is that of a smaller variety. In both of these, at the edge of the section, the membrane of the cyst can be seen to be quite separate from the tunica vaginalis which covers it, and the cyst is situated between the visceral layer of the tunica vaginalis and the tunica albuginea.

In structure an encysted hydrocele of the testis consists of a cell-wall composed of fibrous tissue with an internal lining of

tesselated epithelium, contained within which is a perfectly limpid and colourless fluid containing no albumen, and therefore not coagulable by heat, thereby differing from that contained in the ordinary vaginal hydrocele; it is at times milky in character, and occasionally tinged with blood; the opalescent appearance is due to spermatozoa and seminal corpuscles, the origin of which must be considered hereafter; the presence of blood within the cyst also remains to be considered. From this description it will be seen that in structure, as well as in its seat of origin, an encysted hydrocele resembles the corpus Morgagni.

Encysted hydrocele of the cord resembles in many respects that of the testis, but whether such should be in all cases attributed to a dilatation of the unobliterated tunica vaginalis is open to doubt, some encysted hydroceles of the cord being probably collections of fluid in the unobliterated Müllerian duct, and quite unconnected with the processus vaginalis of the peritoneum.

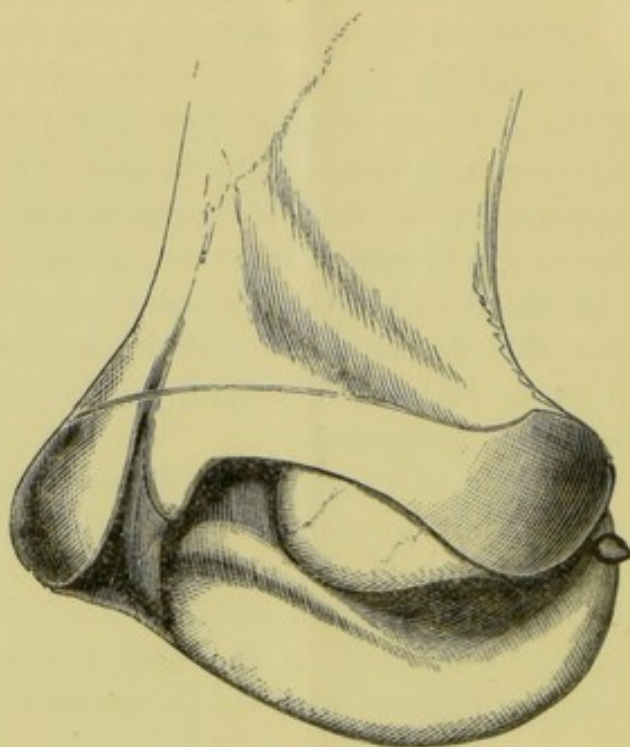
That such is probable is evident by the occasional presence of a cyst between the testicle and epididymis, or even at parts of the cord altogether behind the obliterated tunica vaginalis, and in the contents of the cyst being non-albuminous, with the occasional presence of spermatozoa.

The following diagram, taken from preparation XIII, 26, in St. George's Hospital, shows the presence of an encysted hydrocele in the digital fossa corresponding to the track of the obliterated Müllerian duct.

The internal wall of one of these cysts may become uneven and nodulated from the deposition of calcareous matter, which, increasing gradually, will eventually end in those calcareous nodules met with in connection with the testicle or cord.

As there is encysted hydrocele of the testis or cord, so there are encysted hæmatoceles of the same; the presence of the blood being due to rupture of some vessel either by distension of the cyst-wall or by external violence.

With reference to the presence of spermatozoa in these cysts as first discovered by Mr. Liston about 1843, two opinions are held by different authors. Curling and others believe their presence to be due to rupture of spermatic tubules passing in proximity to the cyst-wall in exactly the same manner as



Specimen showing Encysted Hydrocele between Epididymis and Body of Right Testicle. From Prep. XIII. 26, in St. George's Hospital Museum.

encysted hæmatoceles are formed; whereas Luschka and others, who have demonstrated the existence of a duct connecting the cyst with the spermatic tubes, believe that the passage of the spermatozoa into the cyst takes place by this means, probably by that canal which was in the fœtus the communication between the ovary or testis and the Müllerian duct.

Other suggestions have been made to account for the presence of these bodies, viz., that of Paget, in supposing them to be secreted from the internal lining of the cyst-wall itself, and that of Liston in the cyst being a dilatation of one of the seminal tubes; but the two previously stated are the most probable theories.

In vol. v of '*Holmes's Surgery*,' at p. 97, is represented an admirable diagram of spermatic cysts, fig. *b* showing one situated in the exact position of the corpus Morgagni, and suggestive of being a dilatation of the same.

Solid tumours in the corpus Morgagni are the result of

irritation, and just as we find bursæ under the same circumstances taking on a formative process and developing new material in successive layers one upon another, so here the same process takes place, and thus the corpus Morgagni, by the continuous addition of new material in concentric layers, assumes a pyriform shape, of cartilaginous or fibrous consistence, and ends by forming a tumour which is attached to the cleft between the body of the testicle and epididymis, either with or without a pedicle more or less slender. Should this pedicle become ruptured, or otherwise disconnected from the testicle, it will account for the presence of those cartilaginous bodies which are occasionally found loose in the cavity of the tunica vaginalis, and form an exciting cause of vaginal hydrocele. The size of these bodies varies from about that of a pin's head to that of a Barcelona nut.

The occurrence of one of these fibrous or cartilaginous bodies at other parts of the spermatic cord has given rise to the idea in some cases of a supposed third testicle. E. E. 5 in St. Thomas's Hospital museum represents such a condition.

Lastly, some comment should be made on the occurrence of the rare phenomenon of foetal remains in cysts connected with the testicle, of which no specimen is extant in any of the London museums.

Descriptions of such pathological occurrences have been given in French periodicals, the two following being the most interesting :

'Mémoires de l'Académie Royale de Médecine,' p. 480, vol. iii, 1833 :

"Ovide-Émile Caze, of the parish of Templeux-la-Force, in the district of Peronne, appeared at birth well formed and of good health. About the latter end of a year his parents perceived that the right testicle was more voluminous than the left, and six months later the child was operated upon for hydrocele by Dr. Capon. The puncture was followed by the escape of a small quantity of serum, but it appeared after this evacuation that the testicle remained of greater size than normal, so that a surgeon of the place said that after two years a fresh operation would be one day necessary ; nevertheless, the child did not suffer in any way.

"It was about ten months ago that the young Caze to-day (January 15th, 1834), aged seven years, began to complain of swollen testicle, which became painful to touch. After the repeated application of emollient lotions to the tumour a small opening formed at the anterior part of the scrotum, which each day gave issue to a small quantity of thick white pus.

"It was then that Dr. Andre saw the young patient; the testicle was treble its usual size, of irregular form, adherent to its envelopes, painful on pressure, which caused a small quantity of pus to escape; the lymphatic glands in the groin were enlarged. At the end of a month there was seen issuing from the small wound in the scrotum a fleshy tubercle about the size of a cherry, in the centre of which was observed three ossific points which in polish and whiteness were analogous to that of the enamel of teeth.

"In removing this tubercle there was noticed in the opening of the skin some long hairs, and several were withdrawn.

"These several peculiarities were considered by Dr. Andre to indicate a tumour formed of the *débris* of a fœtus engrafted on the testicle, an opinion which was held by Drs. Legros, Coquin, Renard, &c., who deemed it necessary to assist in the work of elimination, which could not fail to produce the spontaneous separation of the tumour.

"Six weeks later a fresh portion had come through the limited wound in the skin of the scrotum, which was only adherent to the capsule of the tumour. This part of the tumour was eight lines in length, four lines in diameter; it was separated by a circular constriction from the fleshy tubercle primarily situated at that place. Although appearing fleshy it could be perceived by handling that it was not formed only of soft parts; it presented a second constriction in the neighbourhood of the skin, under which could be felt a circular pad of about six lines in diameter, which appeared formed by the adherence of the tumour to the testicle. The general health of the child was otherwise very good. The tumour becoming more and more troublesome by its increase and by the roughness of its surface, a ligature was applied around it at its jutting out from the opening in the scrotum, at that point where it was rather more constricted, and more in the neighbourhood of its implantation on the testicle. The first effect of this constriction was the falling off of the fleshy tubercle which surmounted the tumour, and in the thick part of which was implanted three teeth. The rest sloughed and was carried away by the bistoury several days later.

"After the operation, Dr. Andre, desirous of knowing the composition of the chief tumour, states:—'I made an incision, thus dividing the greasy tissue into two halves; I discovered a little body very hard and bony, which I regarded as a small embryo; I noticed that the envelope of this osseous portion was not altogether adherent, and that it had the appearance of a cyst, which, perhaps, formerly contained the fluid obtained by the puncture made when six years old; perhaps that which I regard as belonging to a particular cyst is only a portion of the envelopes of the testis becoming adherent after the operation for the hydrocele.'

"To-day, the fifteenth after the separation of the tumour, the testicle has diminished in size; it is not painful now on pressure; the circular snare which indicated the attachment is less projecting, but the little opening is not entirely cicatrized. A little fleshy excrescence is still seen there traversed by some hairs, two of which, as long as two inches, are able to be extracted; I believe, however that there remain few of these foreign bodies, and that ere long the cure will be complete.

"In laying this case before the Academy, Dr. Andre, of Peronne, submitted the

tumour of which I have just given you the description. We have dissected it with care, and have found the osseous body which he regarded as a small embryo is none other than a large molar, the crown of which is formed by an eburnated tissue, destitute of enamel, and of which the configuration is very irregular; the portion which represents the root is formed of a spongy bony tissue, and excavated in its centre to such an extent that its extremity has much resemblance to the roots of the primary teeth. This osseous production was jutting out from the interior of a fibro-cellular cyst, of which we found the remains. In the portion of the tumour formed by the fleshy tubercle primarily springing out, we found three teeth, two of which were very small, irregular, and composed of a crown without root, whilst the third, the largest, was provided with both, and offers all the characters of a canine tooth. The crowns of the two largest are covered with enamel."

The following case is reported by Dr. Velpeau at p. 97 of the '*Gazette Médicale de Paris*' in the year 1840 :

"Gallochat, of Esternay, a young man of 27 years, well built, and who had never experienced any serious illness, applied towards the middle of January to Prof. Andral, who immediately transferred him into my ward in the *Hôpital de la Charité*.

"Examining the disease, I saw that he had on the right side of his purse a tumour of the size of a fist or thereabouts; this tumour, which appeared foreign to the substance of the testicle, and over which the skin was not analogous with that of the scrotum, did not appear to belong to the class of known tumours, so that several surgeons thought it to be due, one to cancerous tumours, others to fibrous tumours, and some to tubercular degeneration. I did not think that it was possible to adopt their opinions. Remarking, moreover, that its origin dated from the birth of the young man, that it had never caused him any pain, that no pathological change had taken place in it, that it was insensible to pressure, that it was possible to incise it, to prick it, to traverse it from side to side without causing the least suffering; taking into account the aspect of the skin covering it, its elasticity, the hardness which it presented in its interior, the mesh of hair which came out of a sort of tubercle which existed in front at the bottom of another opening, and from glairy or grumous material which the disease had several times expelled, I came to the conclusion that it was a foetal tumour, a product of conception. Wishing to obtain the precise notes on the first condition of so singular a production I wrote to M. Senoble, a doctor of Esternay, who quickly replied to me in these terms:—At about the age of four months the mother of young Gallochat brought him with a swelling of his purse, which I recognised to be only a pneumatocele; some months after I remarked, in examining the patient a second time, a small inflamed tumour, which appeared to me to be only a slight phlegmon, and which yielded to simple emollient applications. I did not hear of it any more until at the end of three or four years I learnt that the child's tumour continued enlarging. Though these details are very incomplete, and M. Senoble, who for some time had lost sight of young Gallochat, finds it impossible to furnish me with more precise information, they strengthened me, however, in my first opinion, which seemed so singular to those persons I consulted about it that I remained alone in my opinion. I conceived from that

time the idea of extirpating the tumour, which it was advisable to do without removing the testicle, to carry out in some sort a Cæsarian section on the man. The details of the operation belonging altogether to surgery will not occupy me at the present time; it is sufficient to say that it has terminated as I desired.

"The examination of the tumour proved it to consist in the greater part of nearly all the anatomical elements of a mammiferous body. Thus, the external covering is evidently of a cutaneous nature; its principal substance is a medley of lamellæ and fibres, which gives the idea of adipose, fibrous, cellular, and muscular tissues. In its interior we found two small cysts filled with a material analogous to albumen or vitreous humour; another cyst as large as a partridge's egg contained a yellowish-green and half liquid material like meconium; in a fourth bag there exists a gummy mass, of a dirty yellow colour, hardened and surrounded with hairs; this material, analysed and examined under the microscope by M. d'Arcet shows it to have all the characters of sebaceous material and of epidermic scales. Examined by M. Mendl, the hairs of this cyst appeared to have no capsules at their extremities. From one of these cysts, that which was full of the greenish material, came out the mesh of hair which was seen from outside, so that there existed at that spot an opening bearing some resemblance to the anus. Moreover, in the middle of all these elements we found numerous portions of a perfectly organised skeleton, undoubtedly composed of veritable bones, and not accidental productions. These bones, which were entirely enveloped by a sort of periosteum, the several pieces being movable one upon another, possessed real articulations, and can be divided into three categories.

"The first group is composed essentially of three pieces, in which I fancied I recognised the clavicle, scapula, and part of the humerus.

"The second group, much more voluminous than the first, seemed to belong to the pelvis or to the base of the skull; it is either the body of the sphenoid or the sacrum which would constitute the central part.

"Lastly, the third series appeared to consist of portions of vertebræ or fragments of undeterminable bone."

From the above the great similarity of these growths to the dermoid cysts growing from the uterine appendages will be at once seen, and like them they are similar in their mode of formation from cysts, and also in their mode of termination, by setting up inflammation and suppurative action. Their contents are thus discharged by apertures communicating with natural passages or through fistulous openings on the exterior of the body.

Their mode of growth is attributable to the peculiar reproductive power inherent in all tissues of the body, in these cases to the epithelial lining of the cyst-wall, which is as operative in the production of these vagaries as it is in the production of those morbid growths like epithelioma, of which no explanation can frequently be given.