

certain cells foreign to the structure itself is observed—a fact of importance.

Dr. Heneage Gibbes describes these tumours as 'characterised by a dense fibrous groundwork of very irregular growth; and by the presence in this groundwork of variously shaped cells, generally arranged in definite groups. In some they are small round cells, in others large irregularly shaped cells with nuclei. In some of these tumours there are in parts short, thick papillæ: in other places there are no papillæ, but in all cases the surface is covered by columnar epithelial cells, resembling those of the normal bladder. The one feature which differentiates them from the two preceding forms is the arrangement of the ground substance, and the presence in it of the irregularly shaped cells, which do not belong to normal tissue on the one hand, or to distinct new growth on the other.' These characters excite suspicion as to the issue of the growth. The cases of C. C. S., No. 12, and T. S., No. 16, are examples of this group: see Plate V., which is faithfully drawn from Case 12.

The second category of growths, the characteristic of which is heteroplastic structure, is illustrated in the bladder by epithelioma, and perhaps, but if so, certainly in rare instances, by the sarcomata: between which latter and the papillomata a relation has been suggested in the last-noticed growth of the previous

## PLATE V.



EXAMPLE OF THE 'TRANSITIONAL' TYPE OF TUMOUR: SHOWING THE GROUND-SUBSTANCE INFILTRATED WITH VARIOUSLY-SHAPED CELLS; AND NUMEROUS BLOOD-VESSELS RUNNING TO THE SURFACE: ONE HAS GIVEN WAY, AND EFFUSED BLOOD IS WELL SHOWN AT THE HIGHEST POINT: X 160. (FROM CASE NO. 12 OF THE TABLE.)

category, through the presence of certain cells above described.

One example of epithelioma was met with in my series, namely Case 6. It will be unnecessary to enter on any description of this familiar product, but a microscopic section of that tumour is seen, Plate VI. The existence of true sarcoma of the bladder has been affirmed,<sup>1</sup> but not on the observation of fresh specimens. The presence of leucocytes, or of other cells, both round and spindle-shaped, liable to be found in abundance after inflammatory action in the growth, or as seen in the transitional form described, has perhaps led some observers to pronounce such structures to be sarcoma. Before long it is not improbable that some unquestionable example will be met with and identified.

Scirrhus undoubtedly occurs as a deposit in the walls of the bladder, and usually affects the base and sides sufficiently to admit of identification by rectal examination. The hard, unyielding, irregular, knotty outline presented there to the finger is so characteristic as to make its presence easily recognised.

Cancer of an encephaloid type is sometimes met with, but it is difficult at present to say how often it affects the adult bladder; it is probably not common in that situation. It is interesting to observe that there is one preserved example of melanotic growth,

<sup>1</sup> *Path. Trans.*, vol. xxxiv. p. 157.

PLATE VI.



EPITHELIOMA: SHOWING INGROWTH OF EPITHELIUM AND A 'NEST' IN THE CENTRE OF THE SECTION:  $\times 160$ . (FROM CASE NO. 6 OF THE TABLE.)

a very small one, affecting the bladder. It is in the Museum of Guy's Hospital, and was found at the autopsy of a man aged thirty-two, who had been a patient with melanotic disease of the eyeball, and with similar deposits in various other parts of the body. It is represented at fig. 11.



FIG. 11.—Small melanotic tumour of the bladder. Guy's Museum, No. 2104<sup>20</sup>.

Finally, that rare product, dermoid tumour, is occasionally found in the bladder. The contents of dermoid cysts, it is well known, are sometimes expelled, probably from an ovarian source, through the urinary passages. But in one case, which occurred in the practice of my friend Mr. T. Bryant, and which I had the pleasure of seeing with him, the locality of a dermoid tumour was undoubtedly vesical. It occurred in a married lady, aged 30, whose first symptoms were those of cystitis, with the appearance in the urine of long hairs coated with phosphates, considerable quantities of which were from time to

time removed from the bladder. Subsequently digital exploration was made, a pedunculated tumour discovered, and completely removed in two operations. It was composed of a thick layer of true skin, with much fibrous matter, interspersed with sebaceous glands and hair follicles. Altogether it much resembled in form and size an ordinary, rather large button mushroom. The patient is now absolutely free from all symptoms. I am indebted to Mr. Bryant for the accompanying drawings illustrating the nature of this formation (figs. 12 and 13).

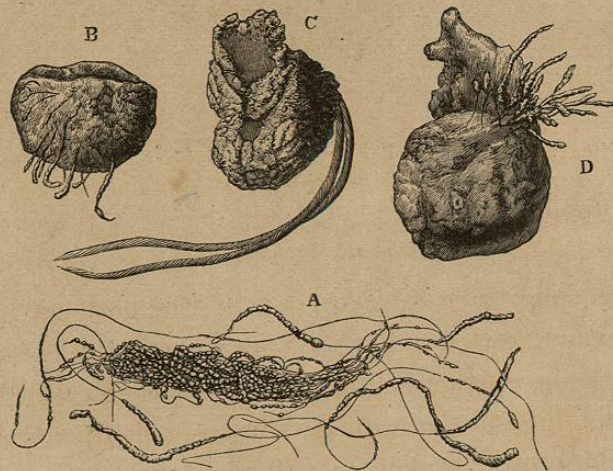


FIG. 12.—Dermoid growth removed from the bladder, with hairs (A) covered with phosphatic concretion. B. First part removed. C. Pedicle with ligature. D. Growth and pedicle finally removed.

It may be now fairly inferred that the commonest species of tumour affecting the adult bladder are

papilloma, occurring in two forms—the fimbriated in tufts of elongated papillæ, and the fibro-papilloma,



FIG. 13.—Microscopical appearance of a section of the skin covering the dermoid tumour.

more solid, largely composed of the ordinary sub-mucous tissues forming the vesical coats—all homœoplastic in character. A third product, more or less resembling the latter in its fibrous constituents, but exhibiting the presence of cells, doubtful in character, sometimes perhaps due merely to inflammatory action, while it excites suspicion as to its tendency, cannot be altogether removed from the homœoplastic group, and, as before said, is provisionally termed 'transitional.' The papillomata have certainly no malignant

tendencies, but their disposition to increase and fill the cavity of the bladder, and thus to disintegrate at their periphery, together with their vascularity and consequent strong disposition to bleed largely, render them sooner or later invariably fatal.

About ten or eleven cases of my own series are certainly papillomatous. Collating the accounts given, and the phenomena manifested by these patients, the general symptoms may be described as follows:—

**SYMPTOMS.**—The earliest symptom is mostly hæmorrhage. It is observed before unduly frequent micturition is complained of and before it is painful. On the other hand, in most of the cases in which the tumour was of the malignant type or approached thereto, pain and frequency of passing water generally preceded the appearance of blood, sometimes for a considerable period of time. In almost all cases symptoms had been noted during at least three years before the patient applied to me; in some as much as six or seven years. When the growth consists chiefly of delicate filiform papillæ, the bleeding is more continuous and free than in 'fibro-papilloma,' or in the 'transitional' forms, where the structure is more solid, and where the fimbriated processes may be altogether absent, or but little developed. There appears to be nothing particularly characteristic in the nature of the hæmorrhage, excepting the one

important circumstance, always to be inquired for, and which ought, if possible, to be observed by the surgeon himself; namely, that in the act of micturition the stream may sometimes commence without any blood stain, or with only a slight admixture, and end of a bright red colour from the presence of much fresh blood. With such an occurrence, and no recent urethral lesion having been made, the source of hæmorrhage must always be vesical. Supposing in such circumstances that the absence of stricture, ordinary diseases of the prostate, calculus of the bladder, and cancer, have been ascertained by sounding and by rectal examination, it remains only to observe certain products which the urine itself may contain.

**PHYSICAL SIGNS.**—I should first say, that little positive evidence is obtained by the rectal and vesical examinations just referred to, in relation to any other growth than the hard, cancerous deposits, which are usually easy enough to identify. The result is generally negative, or nearly so, when a growth of the papillomatous or of the allied variety is present. The only positive physical sign thus attainable which I have met with, and this in a few cases only, has been the sense of slight obstruction to the free movement of the sound on one or the other side of the bladder, in others merely 'a soft feel,' as I have termed it in my notes, as if one were moving the sound in a thicker medium than urine, and without so defined a

limit as is presented by the healthy vesical walls. Then, when examining by rectum, a soft rounded fulness is sometimes to be felt when the finger can be passed beyond the prostate to the base of the bladder, but nothing that is in the least degree definite or distinct.

I have made a practice of fully examining the bladder with a sound, and the rectum by means of the finger while the patient is under the influence of ether on the operating table, prior to performing digital exploration; nevertheless, such are the conclusions I am compelled to come to in relation to sounding for tumour.

EXAMINATION OF THE URINE.—This process is highly important, and is often very significant. Its object is to obtain disintegrated portions of the tumour if present, and to identify their structure under the microscope. It may be necessary to examine several specimens in order to obtain indubitable evidence on this point. An excellent way of obtaining such specimens is to wash out the bladder freely with warm water. It rarely happens that this process fails to detach fragments sufficient for our purpose if there is a fimbriated growth in the interior. But I have recently adopted, after failure by simple washing, the use of an evacuating catheter of small size, connected with the aspirator employed in lithotripsy, and by this means have easily obtained specimens which were

complete evidence of the presence of a growth. This occurred in my last case, No. 20.

There is still another method which, when a fimbriated growth is present, will secure a specimen, and will, moreover, sometimes identify the presence of a salient tumour. It consists in carefully exploring the bladder with a small flat-bladed lithotrite. I discovered my first tumour thus; it was coated with phosphates, and I thought it might be a partially sacculated calculus, as I could seize but could not move it. I have been able to detach small portions of a growth thus, a little hæmorrhage necessarily resulting.

Supposing, however, that some fragments have been washed out, these should be placed under a  $\frac{1}{4}$ -inch object-glass, when the following elements may be sought. First, a portion of a slender papilla, or so-called 'villus,' sufficiently complete for identification, may be met with; the arrangement of columnar epithelium, at right angles to a central axis, and radiating round the terminal point, and presenting a structure which is unquestionable proof of the existence of such a growth in the bladder. On two occasions I have decided to operate on the strength of this evidence.

Secondly, the appearance to the naked eye of small, slightly translucent, semigelatinous fragments in the urine are, of course, very significant. Under the power

named, these mostly appear to be made up of spindle-shaped nucleated cells, some comparatively short and broad, others elongated, and some nearly acquiring the character of a short fibre. These fragments have been present in several cases in which tumour has been subsequently found ; a fact which, in each instance, is noted in the Table of Cases. In two or three instances I have examined the urine day after day, and found no characteristic structure, but this was before I sought, as I now invariably do, by purposely washing out the bladder. In one or two others I have found great numbers of cells like young pavement epithelium, but these are not sufficiently characteristic to offer any indication available for diagnosis.

## CHAPTER IV.

OPERATIONS FOR THE REMOVAL OF TUMOUR AND  
THEIR RESULTS—CASES AND TABLE.

Treatment—Styptics—Injections—Operation for their removal—  
Results—Cases.

TREATMENT.—Supposing we have arrived at the conclusion that the bleeding is certainly vesical, and that in all probability it arises from the presence of an intravesical growth respecting which there is no evidence that it is cancerous in its nature :—are there any means to be employed for checking the growth, or even for destroying it, without having recourse to a surgical operation involving the use of the knife? Are there any means by which hæmorrhage may be subdued or restrained in cases considered temporarily unfit for operation through exhaustion, &c., or for cases in which operation is only partially successful in removing the tumour, and a portion is inevitably left behind ; or for those cases of malignant tumour which are not amenable to any attempt to remove them, and are therefore only susceptible of palliative treatment?

I would reply that, in my experience, I do not know one of the so-called internal styptic remedies