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A RARE FORM OF KIDNEY TUMOR.

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The subject of the present communication was a French-Canadian woman, aged 39 years. She was admitted to hospital on the 15th of September last (1890), suffering from an irregular fever, exhausting diarrhœa, and copious night sweats. She had also a tumor in the right lumbar region of the abdomen, which was thought to be in some way connected with her constitutional symptoms. Her family history showed a strongly marked tubercular tendency, having lost two brothers from phthisis; one sister still living is the subject of phthisis, and another sister died at the age of 25 years from some abdominal affection called "inflammation of the bowels."

Patient had been married at the age of 15 years, and was the mother of seven strong and healthy children, all living,—the eldest aged 23 years and the youngest 14 months. She had always been strong and healthy until the commencement of her present illness, which may be described in two stages. In 1886, while nursing a child four months old, she had all the symptoms of commencing pregnancy—(cessation of menstruation, morning vomiting, and the sensation of movements of the child). Shortly

after the appearance of this latter symptom she was seized with sudden pains about the right inguinal region, which passed off in a few hours and did not recur. The next day, and at times for several months afterwards, the urine appeared bloody, being quite clear in the intervals. Shortly after this occurrence (in the fall of 1885) she noticed a small tumor in the right lumbar region of the abdomen, about the size of a hen's egg. This was hard and painless, and increased in size slowly until December 1889, when a new train of symptoms supervened. Up to this latter date she considered herself in good health, and apparently with reason, as she was delivered of a healthy child in August, 1889, and recovered perfectly from her confinement. At this time, also, she weighed 165 lbs. About Christmas, 1889, she became feverish, emaciation began, and she suffered from a hacking cough. These symptoms continued till February 1890, when she came under the care of Dr. C. L. Cotton, of Cowansville, who has kindly written me the following account of her illness up to the date of her admission to hospital. He says, in his letter dated October 10th, 1890: "Mrs. A. first consulted me about two years ago for amenorrhœa. At that time I discovered the tumor, which was about as large as at the time of her admission to hospital. . . . . The menstrual function was restored and she improved very much. During the period that she was under my observation the tumor did not appear to give her any trouble. She became pregnant, and was safely delivered at full term by Dr. Brown of Knowlton. I saw nothing more of her until last February, when she sent for me. . . . . She had then the appearance of a person in about the fourth week of a protracted typhoid, though I did not make a diagnosis at the time, as I felt very much puzzled. There was much pain and some tenderness over the tumor, and a very exhausting diarrhœa, with an irregular fever. From that time until you saw her she continued in much the same condition, sometimes free from fever for two or three weeks, when she picked up enough strength to drive out; at other times weakened with night sweats and fever. At one time during the summer she had another hemorrhage, followed by a most offensive diarrhœa containing sloughy

material. I kept the diarrhœa in control with large doses of opium and sulphuric acid. The appetite was very irregular, and severe night sweats weakened her much. At no time did I notice anything in the urine to lead me to think that the kidney was involved." On admission, patient was noted as greatly emaciated, anæmic and nervous, hair falling, appetite poor, tongue clean and moist; bowels loose, six or seven stools per day. Motions more frequent at night; stools loose, but show no special characters. Night sweats. Slight frequency of micturition, six to eight times in twenty-four hours, but not accompanied by pain. Urine normal, clear, and free from sugar and albumen. Deficient chest expansion; diminished resonance over front of chest and prolonged expiratory sounds. Heart-sounds normal, but weak. Pulse 105; temperature ranging from 97½° to 103°F. Skin of a dusky and unhealthy appearance.

The tumor, which occupies the right lumbar region of the abdomen, is about as large as the head of a newly-born infant, freely movable both vertically and laterally, only slightly tender on manipulation. Percussion discovers the colon in front of the tumor. Tumor is smooth and firm, evidently solid, and can be easily manipulated through the lax and thin abdominal walls. Careful examination failed to establish any connection with the pelvic organs, although it is noted, that the os is low, and behind the os is a firm body about the size of an almond, which is painful on pressure. Slightly to the left of the os, and behind it, a larger firm body can be felt, like the fundus uteri. Patient was kept under observation till the 2nd of October, during which time all the symptoms (as already described) persisted. It became evident that she was suffering from some form of toxic absorption, of which the tumor seemed to be the *fons et origo*. No diagnosis had been made as to the nature of the mass, and it was decided to expose it as a preliminary step and then be guided by the knowledge obtained as to its treatment. Although the tumor was in the situation of the kidney, the absence of kidney symptoms and the presence of a well-marked septicæmic condition seemed to exclude the diagnosis of kidney tumor. My own feeling was that it was probably of tubercular nature, and

in connection with the colon or cæcum. The case was desperate, and clearly hopeless unless the toxic focus could be removed. Operation was therefore decided upon. The patient was prepared by evacuating the bowels and restricting the diet to a moderate quantity of milk for twenty-four hours before operation.

On the 4th of October, assisted by Dr. Roddick, I exposed the tumor by a vertical incision directly over it and about an inch to the right of the rectus muscle. It was at once evident that it was a kidney tumor. An aspirating needle was introduced, but withdrew only a little blood and permitted the escape of a distinctly fæcal odor. Before proceeding further the left kidney was felt by the hand of the operator within the peritoneal cavity and found to be normal. The peritoneum (posteriorly) was then incised and the colon displaced upwards. The tumor was covered by a thick, firm capsule, which was carefully peeled off, the vessels and ureter ligatured, and the tumor removed. The capsule was closely adherent to the surrounding structures, especially to a knuckle of the ileum in its lower part, and to the ascending colon. In removing the capsule the fæcal odor was exceedingly powerful and penetrating, and was appreciable on the hands of the operator for forty-eight hours afterwards in spite of the most diligent efforts to remove it. There was no bleeding to speak of,—the site from which the mass had been removed was carefully cleansed, the capsule was sutured to a limited area of the abdominal wound and packed with iodoform gauze. The operation was completed in less than an hour, and the patient was removed to her ward in a very weak condition. She rallied, however, and continued pretty nearly as well as before operation for sixteen hours, when she died.

This case is very unusual—in fact, in my own experience, unique both in its pathology and in the symptoms which it gave rise to. In Dr. Cotton's letter from which I have already quoted he says: "The only opinion that I could form was that the tumor (whatever it was) had formed an attachment to the bowel, and that a sloughing process was going on in the tumor and discharging through the bowels at the same time, causing all the symptoms of systemic poisoning which she had more or less all

summer. The case was very puzzling. The starting point of her present illness was undoubtedly when the renal tumor became inflamed about last Christmas, as she had been very well after her confinement for three or four months. This probably went into a gangrenous condition, and blood-poisoning resulted:" With this opinion I entirely agree, with one exception, and that is with regard to the communication of the interior of the tumor with the bowel. Although the symptoms pointed to this explanation, the post-mortem appearances not only did not support it, but from a careful examination both of the tumor and the attached portions of bowel, this would seem to have been impossible. The notable absence of urinary changes is explained by the peculiar relationship of the kidney proper to the tumor as described in Dr. Johnston's report.

AUTOPSY PERFORMED ELEVEN HOURS AFTER DEATH.

Body that of a middle-aged woman. Subcutaneous fat in fair amount, but firm, dry, and of an orange-yellow color. On the right side of abdomen a recent laparotomy wound extending from the hypochondrium to the iliac region. The edges, kept in apposition by sutures, show no union. The incision opens into a large ill-defined sac in the right flank, about which fibrous adhesions have formed. The inner surface of sac is ragged and necrotic, of a brownish-black color. This discoloration appears due to hemorrhagic infiltration altered by the action of the intestinal gases. The wall of the sac lies in intimate relation with the ascending colon, and is closely adherent to the ileum at a point about six inches above the valve. Although stuffed with iodoform gauze, the sac has a distinctly fæcal odor. The vermiform appendix found free from ulceration. No appearance of present or former fistula in any part of the intestines. The right kidney has been removed. The lower end of right ureter traced down to bladder and found to be normal. Bladder and left ureter normal. Left kidney weighs 160 grammes, is somewhat pale, but seems to be normal. Supra-renal capsules on both sides normal. The right supra-renal lies well above the upper extremity of the sac.

Lungs: A small fibro-caseous nodule at each apex, that in the right lung, surrounded by a circumscribed eruption of miliary tubercles, covering the adjoining pleura for an area of about a hand's-breadth,

No trace of secondary tumors found in any part of the body. Brain not examined.

REPORT ON TUMOR.

The right kidney was sent to me by Dr. Bell immediately after the operation, and was examined at once in the fresh state. Small portions typical of the different parts were hardened in alcohol and in Muller's fluid, cut in paraffin, and stained in hæmatoxylin.

The kidney and tumor, as received, form a large, uneven, nodular mass weighing 650 grammes (20 oz.), and measuring 13 x 10 x 7.5 cm. Its general appearance is shown in fig. 1. The ureter (q) and vessels,

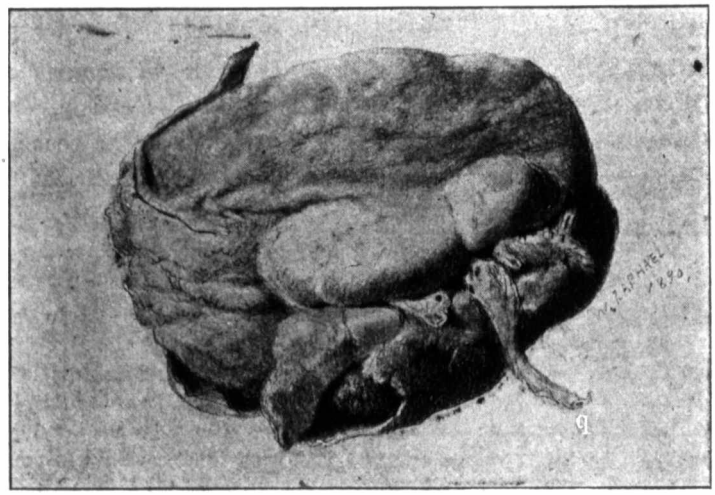

FIG. 1.

enter at the hilus. From this point a narrow zone looking like kidney extends towards the convexity for a distance of 4 cm. anteriorly and 2 cm. posteriorly, and forms less than one-sixth of the entire mass; the remainder is made up of an uneven, nodular growth, opaque-yellow-white in color, which lies within the true capsule (albuginea) of the kidney, but is separated from the renal substance by a narrow, fibrous partition. This growth presents a large central cavity, shown in Fig. 2, containing dirty brownish-red, icherous fluid with an intensely penetrating fæcal odor. In this cavity are several firm, reddish gray masses of blood-clot, one being as large as an egg. The surface of the cavity is covered with a thick, shaggy, greenish-gray, diphtheritic-looking membrane, and shows areas of hemorrhagic infiltration. The contour of the inner surface (shown in Fig. 2) is uneven, consisting of hemispherical, rounded, lobulated projections, varying from 1 cm. to 4 cm. in diameter, and recalling in appearance a cotyledonous placenta. This cavity appears to be a pre-existing cyst, whose surface has recently necrosed. The wall of this cyst varies from 2 mm. to 4 cm. in

thickness, and forms the bulk of the tumor. It is covered externally with a fibrous capsule continuous with that of the kidney. In some places the cut surface of the growth is firm and smooth, of a pale yellow color, and seems œdematous. In others it is softened, and studded with numerous small cysts (not shown in the figure), ranging from a size barely visible to 1 cm. in diameter. These cysts contain in some cases an opalescent fluid, in others blood or a yellowish-brown turbid juice. Their inner surface is rough, soft and ragged.

At one point near the upper end of the cavity a ragged aperture exists, partially stopped by a large mass of blood-clot. Through this rent (shown at x in Fig. 1 and by a probe passed through it in Fig. 2) the cavity of the tumor communicated directly with the perinephritic sac.

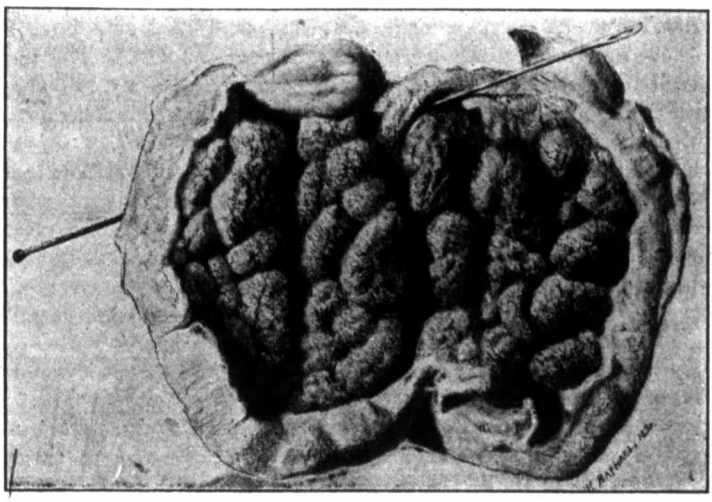

FIG. 2.

On slitting up the ureter, the pelvis of the kidney found to have no connection either with the central cavity or any other part of the tumor, but fine probes passed into the renal vessels can be felt within the cyst wall. None of these vessels seem to be thrombosed. The kidney is small and flattened, evidently from pressure. This reduction in volume is uniform in both cortex and medulla. The capsule is readily peeled off, leaving a smooth surface studded with a number of small, sharply defined hemorrhagic points, not projecting beyond the adjoining tissue, seen on incision to be wedge-shaped, with the base outwards, evidently recent hemorrhagic infarcts. The organ cuts with increased resistance.

Microscopic Examination.—On scraping the cut surface of the firm, smooth parts of the tumor, a turbid juice obtained, containing clumps

of close-set polygonal epithelial cells, some of which contain fat drops. From the cystic portion, in addition to these, a number of large round, flattened cells were found, containing yellow-brown pigment granules, and, in some cases one or more red blood corpuscles, either alone or in addition to the pigment. These are evidently cells which have absorbed portions of extravasated blood. In regions of advanced necrotic changes, the scraping contained only fatty debris and sheaves of large needle-shaped (tyrosin?) crystals, with large numbers of bacteria. Sections of the hardened tissue from the firm, smooth areas show an abundant, but extremely delicate, reticular fibrous stroma, arranged so as to enclose round or oval alveolar spaces containing a variable number of large polygonal epithelial cells. The dimensions of these spaces vary from 0.05 mm. to 0.5 mm. in their longest axis. The larger contain as many as from 10 to 20 epithelial cells, the majority, however, only three or four, and in some cases small alveolar pockets are seen containing but a single epithelial cell. The large alveoli are lined by a single layer of epithelium directly in contact with the stroma, with no visible basement membrane, leaving a central space which is either empty, or occupied by a cell mass not attached to the wall. In the smaller alveoli a lumen is seldom seen, the three or four cells they contain lying with their edges everywhere in contact. Alveoli of this latter kind form the greater part of the tumor. The majority of the cells are polygonal, but some occur as cubes or flattened cylinders. Their size is fairly uniform, averaging 15 to 20 μ in diameter. The nucleus small (5 μ), round, and centrally placed, usually single. Showed no karyokinetic figures. The cell body consists of clear, transparent, homogenous, apparently structureless, protoplasm. At the border of each cell a distinct, sharply defined, cell-wall appeared to exist in most cases, though it could not be positively determined whether this appearance was not due to delicate filamentous, tendril-like processes from the stroma, passing between the individual cells and encircling them. This latter seemed likely, because in spots where degeneration was commencing the nucleus remained distinct, and, while the cell-body (cytoplasm) became swollen and faintly granular, yet at the border of the cell, this limiting wall was more distinctly seen, and stained more deeply than in the well-nourished areas. In more advanced degeneration the nucleus could be seen lying free within a small pocket, enclosed by a border corresponding apparently to this cell-wall, but directly continuous with the stroma. Where the degeneration was still more advanced, nothing could be seen but a delicate fibrillated meshwork enclosing small spaces corresponding only with that of the original cells, but filled simply with granular material. No large blood-vessels seen in the tumor, Scattered traces of brown pigment existed in many places, chiefly within the stroma. A few groups of leucocytes, with fragmented and biscuit-shaped nuclei, were found here and there, both in

the stroma and alveoli. Sections through the kidney, taken at its junction with the tumor, shows a narrow fibrous band between the renal tissue and that of the growth. In the hemorrhagic infarcts the nuclei stain faintly and the arterioles contain hyaline thrombi. The tufts are shrunken throughout, and the fibrous tissue between the tubules is more abundant and dense than normal.

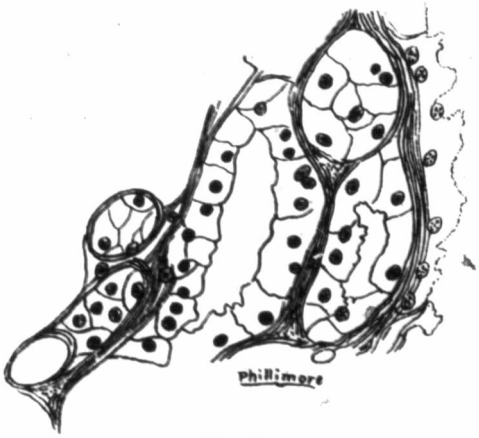

FIG. 3.

Section from the tumor showing the alveolar structure. The clear cell protoplasm and sharply defined cell wall are also seen. Zeiss Obj. D, Oc. 3, semi-diagrammatic. Drawn by Mr. R. H. Phillimore, medical student. The character of the drawing has been much altered in making the zinc etching.

From the situation and general appearance of the growth I was at first inclined to regard it as a tumor originating in aberrant supra renal tissue within the kidney, a condition first described by Gravitz (*Virchow's Archiv*, Bd. 93) under the name of *Strumæ Lipomatodes Aberratæ Rénis*. On comparing the sections, however, with specimens of supra-renal tumors in my possession, it shows no resemblance to them, and must be classed as an "alveolar" adenoma of the kidney. As the total number of accurately recorded cases of this nature is still small, a detailed description seemed advisable.

While this paper was in preparation a report of a case of multiple adenomata of one kidney successfully removed by operation has been published by Dr. Keyes of New York (*Am. Jour. Med. Sc.*, Dec. 1890). As this paper includes a pathological report on the specimen by Dr. H. Biggs of the Carnegie

Laboratory, containing a good deal of general information on the subject of renal adenoma, together with a full bibliography, it seems unnecessary to go into the general bearings here further than is necessary to make clear my views as to the nature of the present case.

Adenomata of the kidney are classified by Weichselbaum and Greenish into papillary and alveolar or tubular, though no special difference appears to exist between the two forms. It is stated that the papillary form occurs in connection with the collecting tubules, and the alveolar, in the convoluted tubes. This statement does not seem to be well established, but as the present case was obviously not connected with the medulla of the kidney, the present case has no bearing upon the matter.

One form of renal adenoma, does occur in which the condition is essentially an overgrowth of the convoluted tubes. These are seen as small, compact, diffuse epithelial nodules lying in the cortex, and the epithelium composing them resembles closely that normally found in the convoluted tubes. Now in the present case the epithelium comprising the tumor does not resemble any normally found in the kidney, and on comparing sections of our tumor with specimens of these adenomata of the convoluted tubules just referred to, the dissimilarity is strikingly brought out. It is difficult to see why the cells of an adenoma originating in epithelial tissue normally present in the kidney should differ materially from it in appearance. This difference is not in accordance with what we know of adenomata in other parts of the body. In the liver, for example, where adenomata are very common, the cells comprising them are always readily recognizable as liver cells. Again, in struma of the supra-renals, whether simple or malignant, and whether arising in the adrenals themselves or in the aberrant portions of supra-renal tissue mentioned above, the cells of the tumor always preserve the characters distinctive of the cells which normally form the supra renal cortex. I have a specimen of this form of tumor where secondary growths in the lungs and liver preserved in every instance the close resemblance to supra-renal cortex.

From this it would seem that there are no grounds for assum-

ing that adenomata growing in the kidney are developed from the cells of the metanephros unless the epithelium resembles that normal to the kidney.

W. H. Councilman (article "Adenoma," *Wood's Reference Handbook*), in describing the various forms of adenoma of the kidney, lays stress on the fact that, even when the epithelium resembles that of the kidney (*e.g.*, in cylindrical adenomata), no trace of glomeruli are ever found. He also emphasizes the fact that in the forms most nearly allied to renal tissue, viz., adenomata of the convoluted tubules, the arrangement is not such as to suggest functional activity. This latter point, however, does not seem to be well taken, as these growths do not depart more from the renal type into the arrangement of their epithelium than do the hepatic adenomata.

Orth (*Lehrbuch der Sp. Path. Anat.*, Band II, p. 109), in a critical survey of the facts concerning hypertrophy and regeneration of the kidneys, while admitting that, to a certain extent, the secreting epithelium possesses powers of repair and hyperplasia, considers that there is no evidence that entire tubules are ever evolved out of existing kidney structures after birth, if at all, and regards enlargement of the kidney following extirpation of the opposite organ as simple and not numerical hypertrophies.

Some light may be thrown on the question by comparing the adenoid tumors occurring in the kidney with those of the liver. Both organs agree in presenting a form of adenoma characterized merely by a disorderly growth of epithelial cells readily derivable from the ordinary hepatic and renal cells. Here the resemblance ceases. The liver presents no other form of primary epithelial tumor except the rarely occurring condition of primary carcinoma of the bile ducts. The kidney, on the other hand, though, on the whole, relatively seldom the seat of tumor formation, presents an extraordinary variety of widely different epithelial growths, none of which show very close relationship to any of the structures normal to the organ. These facts seem easy to interpret on embryological grounds. The liver is a glandular organ, preformed at a very early stage as such, and in which every portion represented in early fœtal life persists to

form permanent functionating tissue. The kidney, on the other hand, arises in a way not yet fully understood from some portions only of a large number of embryonic structures, the subsequent fate of the parts not employed to form permanent tissues being to a large extent unknown.

Of course the great variety in structure characterising renal adenomata may be connected with the fact that in the normal kidney we find constant differences in the character of the epithelium in the convoluted tubules, looped tubules, and collecting tubules, but, except in adenomata of the convoluted tubules, no relation has been demonstrated between the site of the growth and the nature of the epithelium. It would not, perhaps, be going too far to say that the epithelioma of the convoluted tubules is the only one clearly shown to be undoubtedly of renal origin.

While Cohnheim's hypothesis of the origin of tumors has been unduly strained to account for the origin of tumors in regions where no undeveloped rudiments were known to exist, this contrast between the behaviour of the liver and kidney in the matter of primary tumors bears it out most strikingly on theoretical grounds. We have two organs having one homologous form of adenoma. In the organ (liver) in which all the parts represented in the embryo become permanent tissue, no other forms of adenoma occur. In the other (kidney), where several structures are arrested at various stages of their development, other adenomata are not only found, but are also very dissimilar in structure.

The presence of these rudiments in the kidney and their absence in the liver, seems to be the most reasonable explanation of the very different attitude of these two organs with regard to the occurrence of epithelial growths, since adenomata of the convoluted tubules and the ordinary adenomata of the liver present such striking analogies.

When we find a tumor occurring in the kidney and yet differing essentially from it in the nature of its cells, we may account for it in one of two ways. First, we may conclude either that it was derived from the metanephros, and that the estranged appearance of the epithelium is due to subsequent metaplastic

changes in the cells themselves: a state of affairs not yet clearly shown to occur in any tissues of the body. Second, we may suppose that it never formed a part of the metanephros, but was included in it mechanically, by heteroplasia. There is abundant evidence that this frequently occurs in the body, and we have other instances of it in the kidney itself.

In connection with the development of the kidney, we have certain fœtal structures, such as the pro-nephros, and portions of the Wolffian ducts and Wolffian body, which undergo atrophy at an early period of fœtal life, and it appears reasonable to suppose that parts of these may persist, become enclosed in the kidney, and subsequently form tumors in it. Theoretically, the kidney should be the organ, of all others, able to furnish instances of the teratoid origin of tumors from persistent embryonic rudiments, yet, with the exception of striped muscle tumors, few renal growths have been regarded from this point of view, the tendency being rather to consider renal growths as necessarily originating in true renal tissue.

Bland Sutton (*Lancet*, 1887) has suggested the possibility of the so-called congenital cystic kidneys being in reality due to persistent remnants of obsolete portions of the Wolffian duct.

Although Cohnheim's hypothesis of the origin of tumors from the persistence of superfluous portions of embryonic tissue has not fulfilled its originator's expectations by explaining the genesis of all forms of tumor as was at first attempted, still the teratoid nature of dermoid cysts, sacral hygromata, cysts about the neck or floor of the mouth, and their connection with obliterated fœtal canals has been repeatedly demonstrated by Bland Sutton and others. Virchow showed (Ueber die Bildung von Knochencysten, *Berliner Akad. der Wissenschaft.* 1876) that cysts occurring in the shafts of long bones and in the jaw could be traced back to islets of cartilage which had become separated from the epiphysis, and which he was able to demonstrate in normal bones.

Of course the complete proof of the congenital nature of these forms of renal adenomata, whose cells differ from renal epithelium, can only be furnished when the structures which give rise to them have been detected in the kidneys and their source

recognized. This can only be done by the careful examination of a large number of embryos in comparatively early stages of development. On the other hand, in view of the small number of observations in this direction, and the fragmentary state of our knowledge of the development of the kidney, the absence of such evidence does not negative this view. On the contrary, we have seen, on the one hand, that it is in accordance with the tendency of adenomata in other regions to remain true to the cellular type of their parent tissue, while, on the other hand, the proof of the teratoid nature of other anomalous growths has been found forthcoming when carefully sought for.

For the present, I would suggest, as a working hypothesis, that the only true renal adenomata are those of the convoluted tubules, and (perhaps) the papillary form found in the pyramids.

While this view as to the heterologous nature of renal adenoma has been suggested by the fact that the histological features of the tumor in this case differ so widely from those which might be expected in any growth developed in normal kidney, I am not able, from examination of the specimen, to throw any light as to the tissue from which it is derived. The peculiarities of the specimen consist in the non-renal appearance of the epithelial cells and their intimate relation with the finer filaments of the stroma. The tumor, however, shows in places such marked degenerative changes, that one cannot help wondering whether, even in the best preserved portions, the peculiar structure of the cells may not be due to a process of involution.

The relatively large, polygonal cell-bodies, composed of clear, translucent, fat-containing protoplasm, with distinct, sharp cell-wall and small, round, centrally-placed nuclei, have certainly more resemblance to the epithelium found in sebaceous glands than to that of any other region.* Two undoubted cases of sebaceous cyst of the kidney have been recorded. One by Paget (*Surgical Pathology*), the other by Madelung (*Centralblatt für Chir.*, 1888). A third (doubtful) case has been observed by

* This similarity in the section of tumor hardened in alcohol seems to be due to the extraction of the fat which lay in the cells in the fresh condition, leaving the cell body shrunken and making the cell wall unusually distinct. The cells, too, in any case, are larger than any sebaceous cells I have seen.—[J.]

Schlegenthal (*Langenbeck's Archiv*, Bd. xxxvi). In all these cases other typical epidermal structures were detected, and, as in the present case none were found, and no cases of pure adenoma of the sebaceous glands, unaccompanied by epidermis, are recorded, I think that the resemblance is only apparent and due to a degenerative process in the cell-body, the result of slow growth and defective nutrition.

As to the possibility of the tumor belonging, after all, to the class of aberrant supra-renal strumæ it is not easy to express a positive opinion. The cells of these tumors often contain fat-drops, and fat-containing cells are normally found in the supra-renal cortex. The arrangement of the supra-renal tumors as to epithelium, as far as shown by the specimens I have examined, is dendritic and in columns, rather than tubular and in alveoli. The columnar and not the tubular arrangement is one characteristic of normal supra-renal cortieal tissue, and supposing we are correct in assuming that the arrangement of the tumor remains true to its physiological prototype, tubular adenomata would not be derived from supra-renal tissue. The occurrence of aberrant struma in the kidney does not exclude, but rather renders probable, the occurrence of other heterologous growths. Formerly, when renal tumors were not removed by operation, more carcinomata and fewer adenomata were reported. In the present case it cannot positively be stated that this tumor might not have become cancerous, though the absence of metastasis and infiltration of the adjoining kidney substance as well as the microscopic appearance of the tumor itself seems to negative it. All that can be stated of the tumor here described is that it had existed for a long time in the kidney, possibly from an early period of fœtal life. Subsequent degenerative changes occurring in it, an incidental contamination by putrefactive bacteria (entering by the blood-vessels ?) caused the recent changes, giving the case the clinical changes it presented.