and bicarbonate of soda brought no improvement. The opening looked healthy. When the tube was pressed to overcome the resistance of the sphincter, peristaltic movements of the stomach could be observed, and at these times she screamed with pain. The substitution of a tube of smaller calibre for the ordinary stomach tube made no difference. The tube was then allowed to remain in, but the benefit from this procedure was counterbalanced by the annoyance from the regurgitation fluids from the stomach, which set up eczema round the opening. Some evidence of hæmorrhage at times was observed during the last month of her life, when lavage was resorted to. A foetid odour proceeded from the opening during the last week or two. She lost flesh rapidly, which might be attributed to the increased rate of growth of the tumour and to the impairment of the digestive function of the stomach. For the last six weeks of her life the œsophagus was totally obstructed. Death occurred on December 10th, 1898. No post-mortem examination was allowed.

The pain, in my opinion, was due to an invasion of the stomach wall by the growth, and probably not to any adhesions arising from the localised peritonitis. Early operation was advised, and was warranted in this case by the ease with which the operation was borne, but it is probable that had the operation been delayed until total obstruction had taken place, Franck's or Witzel's method could not have been performed owing to the cicatricial contraction, and either the old operation or Marwedel's would have been alone possible. The present mortality, according to Keen,⁵ is about 25 per cent. in malignant cases, and probably 10 per cent. in non-malignant cases. The operation before the introduction of asepsis and the employment of recent methods had a heavy mortality, reaching as high as 81 per cent. The most favourable situation for a malignant growth is probably the lower portion of the œsophagus, and with a slow growth one might expect, as in cases of colotomy for malignant obstruction, a patient to live two years, but as a matter of fact only one⁶ has been recorded to live more than a year. So far as my patient was concerned, at the end of the first month after the operation, it was no gain for her to live, and this particular operation for her at least only prolonged the agony.

REFERENCES.

- ¹ *Centrabl. f. Chir.*, 1897. ² *Wien. klin. Woch.*, 1893. ³ *Centrabl. f. Chir.*, 1896. ⁴ *Beiträge zur klin. Chir.*, 1896. ⁵ *New York Medical Journal*, May, 1898. ⁶ *BRITISH MEDICAL JOURNAL*, 1888.

RENAL PAPILLECTOMY:

A CONTRIBUTION TO THE STUDY OF PAINLESS UNILATERAL RENAL HÆMATURIA IN THE YOUNG ADULT.

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THAT a persistent, painless hæmorrhage can emanate from one kidney, unconnected with any specific cause such as renal stone, tubercle, or cancer, and unaccompanied by any symptom which might enable the practitioner to localise the site of the bleeding or ascertain its origin, has only been recognised since the introduction of the electric cystoscope. Operative interference before this time was impossible, for there was no guide as to whether the bladder or the kidney or which kidney was affected, and without exploration of the latter, no thoroughly reliable facts about the disease could be collected. Although the diagnosis of the site of the bleeding is now easy, and operations for its cure (nephrotomy and even nephrectomy) have proved successful, our knowledge of its cause is still unadvanced.

Kidneys which have been bleeding freely, even persistently, have been laid open; have been even ablated and subjected to microscopical examination by experts, and yet "nothing has been found." The absence of any definite cause for the hæmorrhage is expressed in the nomenclature.¹ Such cases have been described as "renal hæmophilia" (Senator, Broca, Passet); as hæmorrhage of anatomically unchanged kidneys (Piqué and Reblaud, Groslik); as hæmaturia from a healthy kidney (Klemperer); and the bleeding has been ranked as due to an angioneurosis.

I have been attempting to study these puzzling, unilateral, painless, renal hæmorrhages in the young adult for ten years. They form a class by themselves, and are distinct from that painless, renal hæmaturia of the early stages of malignant kidney met with in middle and later life.

No pus was found in the urine of any of my cases, except, of course, in those whose bladders had been washed out. In some of the urines granular casts were discovered, and in

these the bleeding seemed to be more under the control of drugs. But in other cases in which no renal elements were detected the hæmaturia was occasionally so profuse as to necessitate exploration of the kidney. I have usually examined such cases by cutting through the convexity of the cortex, and by introducing my finger into the pelvis. I admit that this has generally proved curative, but at the expense of some risk and probably some subsequent loss of renal function. At the same time, I regret to say I have learnt nothing about the cause of the bleeding in any of my cases by the procedure, for I have detected nothing abnormal or amiss.

The two last cases of unilateral, painless, renal hæmaturia in the young adult² necessitating exploration of the kidney, have convinced me that our ignorance of the actual cause of the hæmorrhage is entirely due to a faulty operative technique. I have been forced to conclude that an examination with the finger is futile; and that if we propose to ascertain the origin of the bleeding we must open the pelvis itself, and examine every part of it by means of a strong light (renal pelviscopy).

I submit that in some at least of these cases the bleeding emanates from one of the renal papillæ and the mucous membrane clothing it; that the papillary part of the Malpighian pyramid is engorged and that its papilla is covered with a plexiform mesh of dilated vessels (varicosity of the papillary plexus). I suspect this vascular change is due to a localised patch of interstitial nephritis impeding the circulation in the boundary layer of the pyramid, and thus preventing venous drainage of the papillary plexus. It may be that the vessels are actually altered in the same way that the entire circulation becomes affected in the advanced stages of bilateral interstitial nephritis. Be that as it may, the site of disease is apparent, and only apparent on opening the renal pelvis. A vivid red papilla assuming the aspect of a tiny villous growth stands out in strong contrast to the pale papillæ around.

I assert that the removal of this vascular papilla with a sharp scoop is sufficient to arrest a renal bleeding which no drug can control.

The cases upon which I changed my line of operative attack and built the foregoing statements are as follows. I have watched the first for eighteen months before reporting it.

CASE 1.—*Intermittent Hæmaturia for Five Years, occasionally persistent, latterly profuse. Marked Anæmia: Cystoscopy: Renal Exploration: Renal Pelviscopy: Papillectomy: Cure.*

History.—Miss L., aged 18, was sent to me in March, 1898, by Dr. Albert Davis, of Liverpool, to ascertain the site and cause of an intermittent hæmaturia of five years' standing. Dr. Davis wrote that attacks came on suddenly when she was in good health, lasted for several weeks or months, and ceased suddenly. She had been under the care of several medical men, and the diagnosis of hysterical hæmaturia had been made because of the attack ceasing as soon as she entered the hospital. Astringents had had no effect. Bacteriologically and microscopically there was no evidence of the nature of the disease. "I send her to you," Dr. Davis concluded, "to examine the bladder with the light, and if that is normal to catheterise the ureters."

Result of Cystoscopic Examination.—When the girl came under my care she was lethargic and markedly anæmic. The urine was maroon-coloured. No casts, tubercle bacilli, or renal pelvic cells could be found by the Clinical Research Association. I examined cystoscopically, and although on each occasion my catheter drew off dark bloody urine, I could see no ureteral efflux. I tried twice or thrice, but always failed, though bloody urine was passed soon after I left.

Progress.—As she had a suspicion of rigidity and tenderness in the right loin, I sent her home with the diagnosis that both ureters were healthy, but that I believed the cause was stone in the right kidney, and in view of the extreme pallor and uncontrolled hæmorrhage right renal exploration, possibly nephrectomy, should be carried out. But I was not satisfied. I remembered that on several occasions I had examined other cases for undoubted painless renal hæmorrhage, and had found the ureters "off work."

Second Cystoscopic Examination.—The patient was brought back in a few weeks; her hæmaturia and pallor were more pronounced. One morning I appeared quite unexpectedly, and examined her in bed. The left ureter was rapidly pumping jets of dark bloody urine; the right ureter was working slowly and sluggishly, but the urine from it was clear. Evidently by taking the girl unawares I had gained my object. The bleeding and renal secretion were under nervous control.

Operation.—Instead, therefore, of cutting on to the right kidney, as I had proposed because of its tenderness, I brought the left kidney out on to the loin. It was healthy both to sight and touch. I therefore turned it over, and examined its pelvis and ureter. Both were healthy. Hoping to find a simple solitary ulcer of the mucous membrane of the renal pelvis analogous to that condition, which I have described in the bladder,³ I incised the pelvis, separated the edges and threw the electric light inside. After swabbing away a little blood, I saw to my astonishment what I believed to be a villous tumour of a papilla. A tuft of congeries of vessels surrounded the extreme apex of a papilla about the middle of the sinus, just within the margin of the hilum (Fig. 1). My assistant and Mr. Woodhouse Braine, who was anæ-

thetising the patient, both examined the papilla. Every other papilla was pale and healthy, but this one was bright red and fleecy. I now took a Volkmann's spoon and cut the papilla and fully half the Malpighian

Fig. 1.—Angioma of a papilla in Miss L.; removal; cure of a five years' hæmaturia.

pyramid out. The wound leaked urine for a couple of weeks and then firmly and finally closed. No blood was seen after the first dressing of the operation wound and the urine at once became brilliantly clear. The tenderness in the right loin disappeared. She has remained well ever since, becoming stout and active.⁴

Description of Papilla.—On examining this papilla under water I saw that it was not villous as I had supposed, but that the vessels of the mucous membrane clothing the papilla were markedly varicosed. Mr. Targett kindly examined the specimen for me and reported there was no evidence of growth, but there was a congestion of the vessels with extravasation of blood and an increase in the cellular stroma. This might be, suggests Mr. Targett, an early stage of a fibromatous condition such as is not uncommon in the tips of the papillæ.

CASE II.—Alarming Hæmaturia: Profound Anæmia: Cystoscopy: Renal Pelviscopy: Papillectomy: Cure.

History.—I was asked in September, 1899, by Dr. Wigg, to examine a lady, aged 30, suffering from profuse hæmaturia. The hæmorrhage had appeared fourteen days previously without any apparent cause and without any symptom to mark the origin of the blood. No renal cells, nor growth-fragments, nor tubercle, nor casts could be discovered (Clinical Research Association). Cystoscopy showed streams of bloody urine to be issuing from the left ureter, the bladder was healthy, astringents were powerless.

Operation.—The hæmorrhage became so violent and the patient so exhausted that I operated a week later, bringing the left kidney out on to the loin. It was absolutely healthy, likewise its pelvis and ureter. I opened the common pelvis and washed away the collected blood. The mucous membrane was healthy, but as fast as I washed away the dark blood, more issued from the lower branch of the pelvis. I therefore slit it up through the kidney substance, separated the incision by means of retractors, swabbed out, and threw in the electric light. (Fig. 2.) I now saw a

Fig. 2.—Angioma of papilla in Miss B.; removal; cure of profuse hæmaturia.

bright red varicosed papilla precisely similar in appearance to that which I encountered in my first case. Eight or ten medical men examined the papilla with me, and I was able to assert that this small point was the source of the hæmorrhage, and that by cutting it out the hæmorrhage would be arrested. My statement was received with much reserve, for it was hardly credible that so dangerous a hæmorrhage could originate from so small an area. I scooped out the papilla, and I am glad to say my prognosis was verified. No blood has appeared since, and the loin has healed. Mr. Targett reports that "the vessels in this part of the kidney are distended with blood, and there is some extravasation."

These are the bald facts of my two cases. They demonstrate

the reality and power of nerve control over the renal blood supply, for both secretion and bleeding ceased in my first case (and in several others, male and female) directly I examined with the cystoscope. They show, therefore, the value of an unexpected cystoscopy. They point to the importance of examining the renal pelvis by the aid of a strong light; to the extremely small source of an uncontrollable hæmorrhage; to the precision and ease with which such a source can be removed; and to the needlessness of mutilating the cortex for this purpose. Finally, I submit the subject as a probable clue to a cause for those painless unilateral renal hæmaturias which have so long puzzled and baffled the physician by their obscurity, persistency, and danger.

NOTES AND REFERENCES.

¹ Rovsing: BRITISH MEDICAL JOURNAL, 1898, vol. ii. p. 1547. ² It is necessary to repeat the special designation of this class. In these days of hurried reading the false impression may be obtained that I am here referring to all classes of painless renal hæmaturia. ³ Author: Solitary Ulcer of the Bladder, BRITISH MEDICAL JOURNAL, May 6th, 1896, p. 1133. ⁴ Patient had a very slight relapse a few weeks ago, that is, eighteen months after the operation, but is again well.

A CASE OF ABDOMINAL NEPHRECTOMY FOR RENAL SARCOMA IN A YOUNG CHILD.

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THE mortality of nephrectomy for sarcoma of the kidney in young children has been so high that it is encouraging to be able to add another to the list of cases of recovery from the operation:

History.

The child, 18 months old, was seen, in consultation with Dr. Cotton, on August 4th, 1898. She had been taken to Dr. Cotton some weeks before because her mother discovered blood trickling down the inside of the thighs from the vaginal orifice. Later distinct hæmaturia was noticed and an abdominal swelling appeared.

Clinical Characters of Tumour.

On August 6th an examination of the abdomen was made under chloroform, and a large, hard, lobulated mass was felt on the left side. It consisted mainly of two parts, one coming forwards to the middle line in the region of the umbilicus, the other extending downwards into the left iliac fossa, but both connected with another mass in the renal region. The whole mass was movable and could be easily pushed backwards into the loin. I could not make out any resonant area in front of it or feel any band lying over it like an empty contracted portion of colon. It was possible to get my fingers between its upper border and the costal margin. There were no signs of any enlargement of the other kidney. The urine at this time was found on microscopic examination to contain a few red corpuscles. The position of the growth, in association with the hæmaturia, left little doubt as to its nature. The great risk of the operation and the great probability of recurrence after operation were described to the parents; but they decided to give the child the chance of benefit from removal of the growth, and they were fortunate in this decision, for the child lived for five months after the operation.

Operation.

The child was admitted into the General Hospital on August 15th, and I operated on the 18th. When examined under the anæsthetic, the tumour was found to be distinctly larger than on August 5th, and extended slightly across the middle line in the region of the umbilicus. The free mobility of the growth in the left side of the abdomen was very striking. I exposed the growth by a small incision in the left semilunar line and found the empty descending colon lying across it. I could readily feel the other kidney, and failed to detect any enlargement. I then enlarged the incision, so that it extended from the costal margin to an inch above the pubes. When thus fully exposed, the tumour was found to consist of numerous lobules of various sizes and very soft and elastic, with the exception of one small nodule at the lower part, which was as hard as cartilage. Numerous large veins were seen ramifying over the growth, under the posterior layer of the meso-colon. I divided the posterior layer of meso-colon and pushed the colon towards the middle line, and then shelled the growth out of the surrounding connective tissue, until I came to the pelvis of the kidney and the large vessels entering at the hilum. I ligated the ureter in two places, and divided it between the ligatures; but the renal vessels were too much on the stretch to be dealt with in this way, and I had to secure them with pressure forceps before division, and ligate them after. I tied the renal veins separately, and then all the vessels together in one ligature. Then, after ligature of some vessels passing between the tumour and the surrounding connective tissue, I was able to shell out the mass. I made a small opening from the loin for the insertion of a drainage tube. The meso-colon was not sutured. The incision in the abdominal wall was sutured in three layers. There was very little blood lost during the operation and but a slight amount of shock was present.

Description of Tumour after Removal.

The growth was as large as a good-sized cocoa-nut, and consisted of three main masses. One had projected across the median line of the