by the head of the bone; but it is not my present intention to say more on this subject, except that the dissection confirms the opinion respecting the production of backward dislocation held by Mr. Morris, who has given much consideration to this matter, and taught it to you in his surgical course.

A question of greater importance is: Why did suppuration of the joint and surrounding soft parts ensue upon the dislocation, which was simple and uncomplicated by external wound? I take it that the explanation lies in the febrile condition provoked by the putrefaction and suppuration in the knee; for experiments have demonstrated that subcutaneous operations, which, as you well know, are in non-feverish animals very inapt to suppurate, will often suppurate when inflicted on an animal in which fever has been previously induced by a local septic inflammation. The influence, therefore, of the septic inflammation of the knee in the injury of the hip may not be ignored.

Here, the fact that the dislocation of the knee was complicated by a wound communicating with the joint, added immensely to the seriousness of the injury, for simple dislocations of this joint are singularly free from risk; the inflammation which attends them is often very slight, and ultimate damage to the mechanism of the joint is much less than might be expected. It is remarkable how much displacement is possible without laceration of the coverings. The two following cases narrated by Pitha are good examples of this.

1. A countrywoman, carrying a heavy basket on her head, stumbled and fell on the bridge of Prague. Taken into the hospital, she was found to have a complete dislocation of the head of the tibia outwards, to the degree that four fingers could be placed on the upper articular surface.

2. A young man jumped from a carriage, the horses of which had bolted, and fell in front of the hospital. He was found to have sustained an outward dislocation of the upper end of the tibia, the displacement of which was so great, that an ordinary drinking-glass could be stood on its articular surface.

In both these cases, replacement was easily effected by manipulation, and the patients made good recoveries.

In the last ten years, the three following cases have been admitted into Broderipp Ward under my care.

1. A plumber, aged 40, slipped through treading on a piece of orange-peel, and, falling heavily, twisted his left leg. Brought to the hospital, the house-surgeon found an inward luxation of the head of the tibia, to the extent that half the upper articular surface was internal to a line dropped vertically from the inner aspect of the corresponding femoral condyle. A large ecchymosis was present over the inner side of the knee.

2. A shoemaker, aged 53, was thrown in wrestling, his opponent falling heavily upon him. Unable to rise, by an injury to his right knee, he was brought directly to the hospital, where he was found to have sustained an inward and forward displacement of the head of the tibia. A large part of the upper articular surface of the tibia, internal to its spine, could be plainly felt. The femoral condyles projected backwards, notably behind the plane of the tibia. The leg was rotated outwards.

3. A very athletic man, about 26 years old, was knocked down by a cab, one wheel of which, he thought, struck him on the right knee. Brought to the hospital, he was found to have a considerable inward displacement of the head of the tibia. In this way, the inner side of the joint was grazed and very bruised.

In all these three cases, reduction was easily effected by manipulation. Very little inflammation followed the injury. The early treatment was immobilisation of the limb and the extensive application of ice. Afterwards, the light mechanical support, with hinge-movement, was worn for a considerable time. In each instance, a very useful limb was retained.

These given cases were instances of lateral dislocation, though in the last the displacement was not purely transverse; backward, or forward dislocations are, from the relations of the popliteal vessels to the bones of the joint, much more grave. In a case of backward dislocation of the tibia, recorded by Pitha, these vessels were crushed, and on the third day, when he first saw the patient, the skin of the ham was gangrenous. Here immediate amputation afforded the only chance of life. Reviewing all the circumstances of our present case, it is a matter of regret that the old rule of primary amputation was not followed here. Only a few years ago, immediate amputation would have been unhesitatingly practised, but, influenced by the teachings of the antiseptic method, we tried to save, where formerly we should have amputated; and the result has, unfortunately, proved that in face of the concurrent injury to the hip, the old rule might have been safer.

One word, before I conclude, about the final hæmorrhage. Does it prove the greater insecurity of torsion compared with ligature? I think not; for, at the date at which this hæmorrhage occurred, the ligature, in presence of the softened state of the end of the artery, and the total absence of clot within it, could not, I believe, have withstood the heightened arterial pressure consequent on the thrombosis of the vein.

REMARKS

ON

THE FATTY TRANSFORMATION OF THE KIDNEY.

By EDWIN RICKARDS, M.B.,

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IN fatty transformation of the kidney, there is a replacement of renal tissue by true adipose tissue, the contour of the organ being, to a varying extent, preserved. The condition is a rare one, and the cases on record are few. It has not, as far as I am aware, been before portrayed, numerous and excellent as are the illustrations of the various morbid changes in the kidney by Bright and others.

Whatever be the source of the fat, there can be no doubt that it is not degenerated renal parenchyma, and it is equally certain that the fat does not stamp out renal tissue. It seems probable that the fat is developed to fill up space created by the breaking down and discharge of renal substance, and that the process is one of physiological compensation, an effort of nature to prevent a vacuum. The origin of the fat may be accounted for in three ways; 1, hypertrophy of the circumrenal fat, which pushes its way into the interior of the organ at its hilum; 2, hypertrophy of the fat, which normally is found in small amount in the interior of the organ between the apices of the pyramids; 3, absorption of fat by the cells forming the stroma of the organ.

Rokitansky, under hypertrophy of circumrenal fat, says that it may increase to such an extent as to force its way into the hilus of the organ, and when this condition has advanced to its highest stage, the kidney presents the appearance of a mere piece of fat, surrounded by a mass of adipose tissue, without the slightest trace of renal organisation, the urinary passages being atrophied and obliterated; that excess of circumrenal fat accompanies atrophy of the organ, and is frequently found when the kidney is affected by moderate but lasting inflammation, especially that caused by calculi. Rayer, under fatty kidney, refers to a case observed by M. Briche-teau. A woman, aged 40, died with suppression of urine of fifteen days' standing; the kidneys appeared plunged in the midst of an immense quantity of fat; they retained their form and natural bulk, but were transformed into two masses of compact fat, in which some vestiges of tubular substance were traceable.

Dr. W. Roberts refers to a case by Godard, where the lower half of one kidney was converted into a mass of ordinary adipose tissue. A calculus of large size was lodged in the dilated pelvis.

In Dr. Browne's case (*Pathological Society's Transactions*, vol. xiii), small abscesses, communicating with each other, were found in the fat, and in one of the abscesses a calculus; there were sinuses in the left groin, extending to the left kidney, which was the one affected.

In Dr. Whipple's case (*Pathological Society's Transactions*, vol. xix), the right kidney was replaced by a pure piece of fat, which was surrounded by an abscess. There was a discharging wound in the right thigh.

In Mr. Heath's case (*Pathological Society's Transactions*, vol. x), there was no renal artery from the aorta.

In my case, from which the lithograph was taken, there was a calculus in the centre of the fat representing the kidney, and a history of calculus for twenty years.

Statistics, therefore, go to show that fatty transformation of the kidney is frequently associated with renal calculus. Even in Dr. Whipple's case, a calculus may have escaped from the kidney, and found its way out of the body through the wound in the thigh. It is reasonable to suppose the sequence of events in such cases

to be renal calculus, suppuration, and discharge of renal parenchyma and its substitution by fat.

The condition under consideration, though a rare one, must not be left out of calculation by the nephrectomist.

CASE.—Alfred Rowen, aged 24, was admitted into the Birmingham General Hospital February 16th, 1883. He was a broad-built, well-nourished man. When seen in the casualty-room at 10 A.M., he had extreme dyspnoea, sitting with his arms leaning on the arms of the chair. The *alae nasi* and muscles of extraordinary respiration were working; his face was covered with beads of perspiration, and a little dusky. His mother, in answer to questions, said: "My son was operated on for stone in the bladder twenty years ago. For many years, he had known that his kidneys were diseased, because he sometimes passed matter in the urine. Occasionally he wetted his bed. Up to three weeks ago, I considered him a strong man; he never ailed, he ate well, and worked hard. Three weeks ago, he passed blood in his water, and vomited blood; he only vomited on that one occasion; at that time, he commenced making a noise in his throat, especially when asleep at night, and so loud was it that it kept awake fellow-lodgers, and, in consequence, he had to sleep in a separate room. He said he could not help it, and that he felt as though he had thrushes and skylarks in his windpipe." During the last fortnight, he had been off work, and a great deal in the house. He had been very drowsy, sleeping during the day in his chair for two or three hours at a time. He had frequently played cards; and, on many occasions, he had suddenly jumped up, and said: "I must leave off, I have got the cramps in my fingers and legs." The fingers and legs would be drawn during these cramps, which lasted about ten minutes at a time.

When examined in the ward, his breathing was very laboured. The dyspnoea was essentially inspiratory. The suprasternal notch, the lower intercostal spaces, and epigastrium, sank in during inspiration. Laryngeal stridor could be heard at the other end of the ward. He was unable to speak, but protruded his tongue when asked to do so. His pulse was 120; temperature 100°, respirations 40. Nothing abnormal could be heard in connection with the heart. On rapidly examining the lungs, mucous crepitant *râles* were heard over both bases behind. Examination of the fauces showed nothing. His legs and feet were not oedematous. Two ounces of urine were obtained, which was found to be alkaline, and to contain albumen and a large amount of pus. He became more comatose, the dyspnoea greater, and the breathing more stridulous. At 1 P.M. tracheotomy was performed, apparently without pain, but without manifest relief. He died at 4 P.M. on the day of admission.

Post Mortem Examination.—The body was well-nourished. The larynx was purple and oedematous. The lungs were oedematous. The heart was normal. The brain was not examined. The other viscera, except the kidneys, were free from morbid change. Both kidneys were imbedded in fat. The left kidney, which was half as large again as normally, on section, was found to be transformed into true adipose tissue. Its capsule was thin. At its hilum, there was a mass of tough, dense tissue, like cicatricial tissue, which extended to the centre of the organ, and in it was impacted a triangular calculus, the size of a tamarind stone; this mass was found to be composed of the obliterated pelvis and ureter, with blood-vessels mostly collapsed, and connective tissue. The adipose tissue was divided for the most part into pyramidal masses by paths of connective tissue, which radiated from the calculus. In this connective tissue ran large blood-vessels. The corpuscles of this tissue were proliferating, and absorbing fat. In two or three spots, near the periphery of the fatty mass, there were small patches of condensed tissue, which the microscope showed to be the remnants of atrophied renal tissue. The ureter remained as an impervious cord. In the right kidney, there were areas in various stages of degeneration; the secreting tissue was reduced to about one-third its normal amount, and this was intensely inflamed. There were circumscribed masses of putty-like matter, and several thick-walled empty sacs; in one sac was a smooth, round calculus, the size of a pea. The pelvis, which was thickened and dilated, contained a calculus, weighing half an ounce.*

REMARKS.—The case shows that life and apparent health may be maintained, when but a small amount of secreting tissue of one kidney only persists. The left kidney had been transformed into fat for many years; and doubtless, for some years, but a small portion of the right kidney had been capable of secretion. It appears that it was only when the remnant of the secreting tissue was acutely inflamed, about three weeks before death, that uræmic symptoms

manifested themselves. The immediate cause of death is obscure. The laryngeal stridor present on admission, and which was of three weeks' standing, coupled with the fact that the dyspnoea was essentially inspiratory, led to the belief that the dyspnoea was the result of oedema of the larynx, and that the coma was due to imperfect oxidation of blood; the continuance of the dyspnoea and coma, after tracheotomy, went to show that they were due to some other cause, probably uræmia.

THE EPIDEMICS OF ENTERIC FEVER IN THE TRANSVAAL, ZULU, AND EGYPTIAN WARS COMPARED.

By R. VACY ASH, M.B., L.R.C.P.Lond.,
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BEFORE comparing the epidemic of enteric fever that followed the occupation of the Transvaal in 1878, and the Zulu war in the following year, with that of the late expedition in Egypt, I will put a few queries as to what is meant by enteric fever, its production, contagion, etc.

Is it to be understood that a specific germ produces a specific and non-failing fever of unvarying type, as propounded by Budd and others? If so, I fear the following facts will lead to more perplexity than ever, and we shall fail to reconcile them with the modern outbreaks of this disease, be they civil or military. But, if the possibility be admitted that there may be more than one form of this fever, in the same way that there may be more than one form of malarial fever produced under certain circumstances, with factors common to different countries, manifesting, it may be, the usual intestinal characteristic complications, then these facts may be reconcilable to new theories, and, under abler hands than mine, backed by statistical knowledge, may be the means of throwing some light on this increasingly complicated subject.

Modern research has effectually dispelled the idea of accident in the production of zymotic disease; and, daily, fresh discoveries pin down to a hard and fast line germs as centres of disease. I do not, therefore, mean to say that no infectious germ is present in enteric fever, any more than in relapsing fever; but, that causes foreign to the usual habits and customs necessary to the health of a man will produce certain symptoms recognisable as a fever which, for want of a more definite nomenclature, goes by the name of enteric at present.

"Contagium vivum seu animale," is as true now as in the days of the Romans, who firmly believed that poisons of malarial diseases consisted of living beings. Have they not received striking confirmation under the hands of Koch and others in their recent researches?

I cannot help thinking that a most important point in the theory of the production of epidemics, be they typhoid, typhus, or any other fever, is the vitality of the germ; always supposing, of course, that the presence of a germ is necessary to the production of infection, or of fever. One peculiarity of these germs is their rapid multiplication. Whether it be by fermentation, multiplication, by division, cell-contact, or some other plan, it is certain that rapid reproduction takes place, and with it infection. Now, can this reproduction take place in a perfectly healthy subject? Can the germs be carried in healthy blood for an indefinite time, subject to all the vicissitudes of climate and life, and still retain their reproducing or infective powers when favourable opportunities occur? Or, must their habitat at once be found in a system so slightly physiologically imperfect, a balance so equal in fact, that the slightest introduction of a poison renders the system pathological? If this latter idea be probable, then I can understand how a soldier taken from his quiet routine work at home in comfortable barracks, to live in a tropical climate, or undertake a campaign, when, in either case, exceptional duties are necessary under somewhat trying circumstances, may be a fit bed for the reproduction on an extension scale, of germs producing fever. But, is this fever typical enteric, or may it not be a variation of it? The atmosphere of Tel-el-Mahuta and Tel-el-Kebir produced no pestilence, although we slept on imperfectly buried bodies at the former place, and breathed a loathsome atmosphere for days at the latter place. Dysentery and diarrhoea there was in abundance, but not enteric fever. True, time was wanting to develop the period of latency; but would the conditions ever have ended in enteric fever without the presence of others capable of producing a similar disease? I use the word "develop" to refer to the reproduction of the specific germ only. Then, again, we have no evidence that enteric fever existed at those stations prior to their occupation by our troops,

* A section of the left kidney is shown in the lithograph.