Extraperitoneal Rupture of the Bladder as a Result of Fracture of the Pelvis.

This paper by Joiuon is based upon an analysis of 100 recorded cases of extraperitoneal rupture of the bladder occurring in association with fracture of the pelvis. If we may judge by certain statistics furnished in the paper this injury is a very rare one. Out of 142,418 surgical cases, treated in three hospitals named, there were only eight cases of rupture of the bladder. The statistics are not quite recent, and we are inclined to believe that the injury is more common than the figures appear to indicate. The author himself points out that it occurs oftener now than formerly, on account of the greater frequency of accidents on railways, tramways, and in great engineering works. It is estimated that about 38 per cent. of cases of fracture of the pelvis are complicated by rupture of the bladder. This does not include cases in which the
membranous urethra is ruptured. The injury is usually met with in middle-aged males, this class of the population being most liable to the forms of violence by which it is produced. In a large proportion of cases the patient is under the influence of alcohol when the accident occurs, the bladder being distended and therefore more liable to be punctured by a spicule of the broken pubic bone, or burst by the increased abdominal tension produced by the blow. The traumatism is always very severe—a fall from a height, a crush by a heavy weight falling on the pelvis, or the passage of a loaded waggon over the part.

The tear in the bladder is almost always produced by the inner end of the external fragment of the horizontal ramus of the pubis perforating its anterior wall. This is explained by the fact, that, in fracture of the horizontal ramus, the outer fragment is almost invariably displaced backward and inward. In this connection the writer points out the risk which attaches to forcible attempts made to elicit crepitis for purposes of diagnosis, and also to the application of constricting bandages applied round the pelvis in the treatment of such cases. In some cases the bladder has been torn by forcible separation of the symphysis, dragging upon its anterior ligaments. Occasionally a displaced fragment of the ischium has perforated the bladder wall. Sometimes it is burst by the continuance of the force which fractures the pelvis, without its walls being directly injured by broken bone or the drag of ligaments.

In the great majority of cases the tear is on the anterior wall of the bladder and close to the neck, and it opens into the space of Retzius. Rarely it is at the base of the bladder, e.g. when due to perforation by a fragment of the ischium, or by bursting. There is usually a single, irregular tear in the bladder, which admits of the escape of urine into the cellular tissue. Occasionally the opening is valvular and the urine does not escape.

The injury is attended with considerable shock. The ordinary signs of pelvic fracture are usually present, and there is swelling and often ecchymosis in the region of the pubis. The patient has a strong desire to pass water, but is unable to do so. A catheter can easily be passed, but withdraws only a small quantity of blood-stained urine. In from fifteen to twenty hours the signs of extravasation of urine manifest themselves in the form of a rounded, often a symmetrical swelling in the hypogastric region. The integument becomes oedematous and the abdomen may be distended and painful. Vomiting is sometimes present. General symptoms of infection soon appear. The differential diagnosis is between extraperitoneal rupture, intraperitoneal rupture, and rupture of the membranous urethra. When the rupture is into the peritoneal cavity, the general symptoms are much more serious and come on more rapidly, and on passing a catheter no fluid may be obtained. In rupture of the urethra there is usually bleeding from the meatus, and there may be difficulty in introducing a catheter into the bladder. The treatment consists in immediately making a free incision above the pubis, exposing the rupture, and if possible suturing it. In many cases it is impossible to introduce stitches, and all that can be done is to drain the pouch of Retzius. A catheter should at the same time be tied into the bladder. (A short résumé of each of the 100 cases on which this paper is based is appended).—Ann. d. mal. d. org. genito-urin., Paris, September 1902.
ON EXCISION AND REGENERATION OF LONG BONES IN OSTEOMYELITIS AND TUBERCULOSIS.

In cases of osteomyelitis, where no improvement follows incision and free exposure of the medullary cavity by extensive chiselling away of bone, Berndt strongly advocates extirpation of the entire affected bone or portion of bone. Therapeutically, he holds, the same result is attained by removing the affected bone entire, as by amputation; and if the retained periosteum forms new bone, a useful limb is saved. If new bone is not formed, amputation of the limb may be undertaken later. He only employs the operation in cases where no improvement results after the freest chiselling away of bone, and where amputation seems called for. The following may be quoted as an illustrative case:—A boy, aged 7, was affected with acute osteomyelitis of the left tibia. An incision was made along the whole length of the tibia, and a large periosteal abscess evacuated; the medullary cavity was exposed along the whole diaphysis, the infiltrated marrow scraped out, and the cavity stuffed. A few days later, as the symptoms had not abated, the upper epiphysis, which was infiltrated with pus, was scraped out. Four days later, as the patient was no better, and as the knee-joint was filled with pus, the remainder of the upper epiphysis, together with the shaft of the bone as far down as the lower epiphysis, was removed. The patient began to improve at once, and eventually recovered with a shortened but useful limb. The knee-joint became ankylosed, and a new tibia was formed from the periosteum.

Other cases are described, in which the lower third of the femur, as far as the epiphysis, the upper two-thirds of the tibia, the fibula, and the clavicle were removed. The subsequent formation of bone is illustrated in each case by skiagrams. The after-treatment is, of course, more prolonged than after amputation, and in very weak patients this consideration may determine the sacrifice of the limb. A point to be attended to in the after-treatment is that the periosteum must be stimulated by a foreign body, to make it throw out bone. As a rule, packing suffices for that purpose. As soon as possible a fenestrated plaster case is applied to let the patient get about, and at the same time to keep the affected limb at rest.

Berndt describes also three cases of tuberculous disease of bone, in which he extirpated successfully two-thirds of the ulna, the whole humerus, and 8 cms. of the femur respectively. In the two last cases bone was re-formed; in the first case the wound was closed shortly after operation, and the periosteum did not throw out new bone.

These cases show conclusively, Berndt maintains, that the fear of insufficient formation of new bone, after removal of large sections, is exaggerated, provided the periosteum is retained. He urges the trial of removal of the affected bone or section of bone in "amputation cases" of osteomyelitis as bone tubercle, and holds that many useful limbs might be saved if it were more generally adopted.—München. med. Wchnschr., April 1902, No. 13.
ON LEUCOCYTOSIS IN SOME SURGICAL DISEASES, WITH SPECIAL REFERENCE TO APPENDICITIS.

Wassermann agrees with Curschmann that, in the great majority of cases, appendicitis with simple fibrinous exudate can be distinguished from that with abscess formation, by an estimation of the number of leucocytes, even in cases where the other indications leave one in doubt. Cases where no abscess forms either run their course without any increase in the number of leucocytes, or the number may show a relatively small increase at the commencement of the illness, which returns to the normal as the disease progresses, with perhaps an occasional isolated elevation. Such a leucocytosis exceeds 20,000 or 22,000, only in extreme cases. If a marked leucocytosis, 25,000, or over, is present in the first few days, or if it appears later in the disease, and continues, abscess formation is indicated with certainty, in the absence of any other exciting cause, such as pneumonia. A single observation of 25,000, or over, is of grave import.

Wassermann records his examination of the blood in a number of cases as evidence of the truth of the above propositions. He has observed a number of cases of appendicitis, and of other surgical conditions attended with suppuration, and his conclusions are as follow:—

The diagnosis of suppuration, on the ground of the presence of leucocytosis, can only be made if other exciting causes can be absolutely excluded. The examination of the number of leucocytes in appendicitis would seem to be of the greatest importance, since he has seen a number of cases, where, in spite of their apparent mildness, operation has been indicated by leucocytosis, and extensive suppuration in the ileo-caecal region has been disclosed. In two cases, where the symptom was not present, its absence was accounted for in one by the excessive virulence of the infection, which exhausted the patient's strength and prevented the usual reaction taking place, and in the other by the chronic nature of the case, and the fact that the abscess was extraperitoneal. The leucocytosis in appendicitis is of the same nature as that in other inflammatory conditions, consisting of an increase in the polynuclear neutrophile cells. There is no demonstrable connection between the grade and nature of the leucocytosis and the variety of organism which has caused it. Non-infective irritation of the peritoneum causes a slight leucocytosis.

Localised suppurative processes in other parts of the body, such as prostatic abscesses, perinephritic abscesses, suppuration in the glands of the neck, also cause slight increase in the number of leucocytes. General infection with the common pyogenic organisms causes a leucocytosis of high grade.—München. med. Wchnschr., 1902, Nos. 17 and 18.