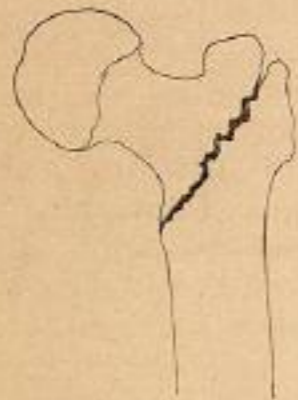


shall thus avoid the mischief which might arise from mistaking a fracture of the character of which we are now speaking, for a fracture wholly within the capsule.

§ 2. Fracture of the Trochanter Major.

Under the title of "Fracture through the Trochanter Major," Sir Astley Cooper¹ writes as follows: "Fractures sometimes happen through the trochanter major obliquely, and the cervix ossis femoris does not participate in the injury;" and among the illustrations contained in the same volume, Figure 2, Plate xii., "exhibits," says Sir Astley,

FIG. 150.



Sir Astley Cooper's imaginary fracture. From *Treatise on Dislocations and Fractures of the Joints*, 2d, London ed., 1823, Pl. xii., Fig. 2.

"the seat of fracture of the trochanter major often mistaken for fractured cervix femoris; this fracture unites by bone."

This illustration is supposed to refer to the fracture spoken of by him as one which "sometimes happens" through the trochanter obliquely without involving the neck. The line of this supposed fracture, as shown in the illustration, is from near the top of the trochanter major downwards and inwards, and terminating on the shaft just below the trochanter minor. It does not, therefore, involve the neck, but it severs the thigh-bone completely.

Sir Astley describes briefly in the text the first case of "this kind" he "ever saw." "It was in St. Thomas's Hospital, about the year 1786." Mr. Cline thought it to be a fracture of the neck, but the patient having subsequently died, "the fracture was found through the trochanter major."

It does not appear whether Sir Astley witnessed the dissection, nor is there any statement to the effect that the line of fracture was the same as that indicated in the woodcut.

His second case, which he saw in consultation with Mr. Harris, was not verified by an autopsy; and upon a careful reading of the report as given by Mr. Harris, I am unable to find a particle of evidence that it was such a fracture as Sir Astley supposed it to be. Indeed all that Mr. Harris says upon this point in his report is, that Sir Astley "agreed with Mr. Brodie and ourselves in declaring the fracture to be placed in the trochanter major, where it unites with the cervix femoris." In all probability, therefore, it was an extracapsular impacted fracture, or, perhaps, it was a simple fracture across the base of the trochanter.

Sir Astley believed that he had seen three other similar cases in the course of his practice, none of which, however, were established by dissection.

The example reported by Stanley,² of a woman 60 years old, who died three years after having fallen and injured her right hip, was certainly

¹ Sir Astley Cooper, on *Dislocations and Fractures of the Joints*, London, 2d ed., 1823, p. 168.

² Stanley, *Med.-Chir. Trans.*, vol. xiii. p. 504.

not an example of the fracture described by Sir Astley; but in all probability it was an extracapsular fracture, with sufficient comminution to have separated the trochanter major from the shaft of the femur. Mr. Bransby Cooper's case¹ is equally unsatisfactory. The cases described by Waechter² and by Clarke³ have been classified as trochanteric fractures, but they would be more properly called extracapsular impacted and comminuted fractures of the neck and trochanter. The case reported by Waechter may be given as an illustrative example of some of the accidents of this latter class.

A man 71 years old, fell upon his left hip. A week later he was admitted to the hospital. There was no sign of contusion and no crepitation. Outward rotation alone caused pain. Subsequently the limb became flexed, rotated inwards and adducted. Four weeks after the accident he died of pneumonia. "The round ligament was found to be hyperæmic, but there was no effusion within the joint. The upper and inner portion of the trochanter was separated by a line of fracture which lay entirely outside the joint, beginning close by the upper edge of the insertion of the capsule, running downwards and outwards, and then up across the top of the trochanter. The fragment, which was split into two pieces that were slightly movable on each other, was slightly displaced backwards and inwards, and the periosteum was torn in front, but not on the outer side. The tendons of the pyriformis, obturator internus and gemelli, and the anterior fibres of the gluteus medius, and upper fibres of the gluteus minimus remained attached to the fragment. There was no sign of repair; no extravasation of blood. A fissure, three centimetres long in the shaft, made the remaining half of the trochanter slightly movable."

In short, I am compelled to say that the fracture described by Sir Astley unaccompanied with comminution of the trochanter major, has probably never been met with. The illustration which he furnished of this accident was drawn, not from any such specimen seen by himself, but from his own ideas as to what conditions of the fracture would best explain the clinical phenomena presented. Surgeons of Sir Astley's day had not become so well acquainted with the variety of conditions in which an extracapsular impacted fracture may be found. In some cases the penetration being almost imperceptible, while in others the penetration is such as to separate the trochanter into several fragments, some of which may be completely detached and displaced.

Sir Astley Cooper's error in diagnosis, as Malgaigne does not hesitate to call it, has embarrassed and misled many who have attempted to study this subject; and which embarrassment can only be relieved by a complete rejection of all that Sir Astley has written upon it.

And now, having disposed of the fracture imagined by Sir Astley, and having come to the consideration of a true fracture of the trochanter major, it becomes necessary to say that I have not found anywhere reported an example of this fracture demonstrated by dissection, other than epiphyseal separations and the fractures of the trochanter caused by im-

¹ B. Cooper, *A. Cooper on Dislocations, etc.*, p. 192.

² Waechter, *Deuts. Zeits. für Chir.*, vol. viii. 1877, p. 104 (Stimson).

³ Clarke, *Amer. Journ. Med. Sci.*, 1836, vol. ix. p. 181, from *Trans. Med. Phys. Soc., Calcutta*, 1825.

paction of the neck just referred to. Agnew gives an illustration of a specimen contained in his cabinet, and which he describes as a "fracture" of the epiphysis, but he does not indicate whether he regards it as a true fracture or an epiphyseal disjunction.¹ I know of no other supposed cabinet specimen, and of no clinical example confirmed by dissection.

Reports of clinical examples not confirmed by dissection, are almost equally rare. Agnew says that, in 1181 fractures of the thigh treated in the Pennsylvania Hospital, this injury was recognized only four times; but he furnishes no description of either of the cases.

I have also myself reported one example of this fracture as having come under my own observation.² The patient, James Redwick, a travelling showman, æt. 23, fell, August, 1848, from a high wagon, striking upon his left hip. When he got upon his feet, he found himself unable to walk, and was carried to his room. Dr. Wilcox, of Buffalo, was called to see him and applied a long straight splint. Fourteen days after the accident I saw the patient with Dr. Wilcox. The thigh was not appreciably shortened, nor was there any eversion nor inversion; but the epiphysis of the trochanter major was carried upwards toward the crest of the ilium half an inch, and slightly sent in. No crepitus could be detected. The splint was continued five weeks; and about a month after, I found the fragment in the same place, but he was able to walk with only a slight halt. I cannot say that the case admits of no doubt as to the true character of the accident, although at the time I entertained no doubt. I think now it may possibly have been an extracapsular impacted fracture.

Symptoms and Treatment.—Considering the limited amount of information we possess upon the subject of true fractures of this process, I shall refrain from offering any opinion as to the symptoms or treatment. It will be more prudent, it seems to me, to leave these matters for the present to the more intelligent decision of the surgeon who is in attendance.

§ 3. Separation of the Epiphysis of the Trochanter Major.

FIG. 151.



Mr. Aston Key's case. Prop. 1195, Guy's Museum. (From Bryant.)

An example of this accident was reported by Mr. Key to Sir Astley Cooper.³ The subject was a girl, aged about sixteen years, who fell, March 15, 1822, upon the sidewalk, and struck her trochanter violently against the curbstone. She arose, and, without much pain or difficulty, walked home. On the 20th she was received into Guy's Hospital, and the limb was examined by Mr. Key. The right leg, which was the one injured, was considerably everted, and appeared to be about half an inch longer than the sound limb. It could be moved in all directions, but abduction gave her considerable pain. She had perfect command over all the muscles,

¹ Agnew, Treat. on Surgery, vol. i. p. 945.

² Trans. Amer. Med. Assoc., vol. x. p. 254.

³ Sir Astley Cooper, on Dislocations and Fractures, etc., 1851, Amer. ed., p. 192.

except the rotators inwards. No crepitus could be detected. Four days after admission she died, having succumbed to the irritative fever which followed the injury.

The autopsy disclosed a fracture through the base of the trochanter major, but without laceration of the tendinous expansions which cover the outside of this process, so that no displacement of the epiphysis had occurred, nor could it be moved, except to a small extent upwards and downwards. A considerable collection of pus was found, also, below and in front of the trochanter.

The absence of displacement in the fragment, with its peculiar and limited motion, sufficiently explained why the fracture could not be detected during life.

A case was reported by McCarthy to the Pathological Society, and is printed in the Transactions as "a traumatic separation of the trochanteric epiphysis," similar to Aston Key's, quoted above. The patient was a girl eight years old, who, when brought to the hospital, was considered too ill to be examined, and died a few hours afterwards.

The history was, that she had never had any illness previous to a fall on the left side a week before, while playing. A day or two later a lump was noticed on the left hip, and the child was kept in bed in consequence. A few days later her breathing became so difficult that she was brought to the hospital, walking the distance, half a mile, and not complaining of pain. The autopsy showed "pyæmic pericarditis, pleurisy, and pneumonia," a large extra-peritoneal abscess in the pelvis, connecting along the tendon of the pyriformis with another around the neck of the femur. The trochanteric epiphysis was completely detached from the shaft, but held in position by tendinous attachments and reflections of the capsule.¹

A very interesting case has been reported by Prof. T. J. Roddick, of Montreal, Canada.² A lad, æt. 16, became lame in consequence, as Dr. Roddick thinks probable, of leaping a fence in pursuit of a ball. Subsequently an abscess formed over the trochanter, which was opened. A few weeks later he died, apparently as a consequence of pyæmic infection. It was then found that the trochanter was lying in a mass of pus, entirely separated from the shaft, and with no other lesion.

Mr. Poland³ reports a case, also, which occurred in a boy twelve years old (no doubt, therefore, it was an epiphyseal separation), at Guy's Hospital, and which was seen by Mr. Bryant; but this was not confirmed by an autopsy. It was caused by a direct blow, and "was characterized by thickening and projection of the trochanter."

Conclusions.—The cases reported by Mr. Key, McCarthy, and Roddick would seem to show that in epiphyseal separation of this process there is a peculiar tendency to the formation of pus, and of general pyæmic infection, and which may perhaps find its explanation in the great vascularity of the bony structure at this point, and in the fact that the lesion of this spongy tissue especially exposes the patient to the absorption of the septic materials.

¹ McCarthy, Trans. Path. Soc. London, vol. 25, 1874, p. 200 (Stimson).

² Roddick, Canada Med. and Surg. Journ., Nov. 1875, p. 207.

³ Poland, Bryant's Surgery, 1st London ed., p. 950.