

so as to steady the broken fragments more effectually. The splints were removed in four weeks, no motion having been allowed in the joint during this period. The bone was found firmly united without the intervention of any fibrous tissue, and he could at once flex the elbow to nearly, if not quite, a right angle. In a week or two the movements of the joint were perfect, and that without any assistance from me.

On the 9th of May, exactly seven weeks from the first fracture, he slipped on the oiled floor, striking his left elbow against the end of a bedstead, thus fracturing the left olecranon, and when he fell to the floor also produced a refracture of the right bone. On this occasion a large amount of blood was found poured out over the back and sides of the right elbow.

These fractures were treated in much the same way as the previous one, and the splints were removed in four weeks as before. Both fractures were united by bone, and after two or three weeks almost perfect flexion was obtained.

After this experience the boy took the greatest care to avoid any further accident, and succeeded in doing so until October 6th. At this date, while he was sitting on a bench apart from his school-mates, who were at play on the school-grounds, two or three of them rushed in his direction, and he threw up his left arm to ward them off. In doing so he felt the bone break again, and when I saw him about two hours afterwards I found a very large extravasation of blood already showing distinctly through the skin over the fractured olecranon, and making it difficult to detect the fracture.

Again the usual anterior straight splint was applied, but only a wad of cotton wool posteriorly, as I feared to make any firm pressure by pad or splint there, because of the effused blood. After about ten days I found the swelling sufficiently reduced to use a pad and adhesive plaster to the upper fragment of the olecranon. On November 5th, the splint and other appliances were left off. On examination, I felt a furrow about one-fourth of an inch wide at the side of the fracture. At the base of this furrow I found what appeared to be bone uniting the olecranon with the ulna.

The patient has since November 5th been allowed moderate and careful use of the arm, and you will observe that the movements of the elbow are nearly perfect. You will also see that the motions of the right elbow are quite normal, and the bone seems little or not at all deformed. It may possibly be that the uniting medium in the left elbow is a broad, short and firm band of ligamentous tissue, but I can detect no decided movement of the upper fragment upon the lower.

REMARKS.

It may be a question whether this case should have been reported as one of fractures of the olecranon or of separations of that epiphysis. Bone is said to begin to form in the olecranon process at ten years of age, and union with the ulna to take place at sixteen years. Whatever may have been the true nature of the injuries, it is, at all events, certain that in three, if not in all four, fractures (or separations of the epiphysis), the parts were reunited by bone or cartilage, and not by ligamentous tissue.

Hamilton says, in his work on fractures and dislocations, that he never saw but one case of separation of this epiphysis, and that occurred in a boy of seven years, while he was trying to break up some adhesions in the elbow joint. He had met with seventeen fractures of the olecranon, and out of these he got bony union in five.

Hulke states, in "Holmes' System of Surgery," that fracture of the olecranon is almost unknown before fifteen, and that union is generally fibrous.