are not already closed by the disease. Sodium bromide was at first tried instead of lipiodol, but it was found that it was very apt to soak the wool and escape. It is also as well to apply a piece of wet wool to the puncture hole in the inferior meatus as soon as the needle has been removed, to prevent escape of lipiodol in this situation.

The lipiodol may be removed with the Watson-Williams syringe, the needle of which can be placed in the puncture hole formerly made. In other cases, as the antrum will be opened surgically later, the lipiodol may be left *in situ* till the operation, as it is sterile when injected.

The accompanying figures are reproductions of antero-posterior x-ray photographs; they show a normal maxillary antrum injected with lipiodol, and an antrum containing an epithelioma. In the latter the lipiodol has filled those parts of the antrum not occupied by the growth. The pieces of wool in the nose are well seen.

PINNING THE FRACTURED ULNAR STYLOID PROCESS IN COLLES'S FRACTURE.

BY

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MANY patients who have suffered Colles's fracture complain, months afterwards, far more of weakness of the wrist-joint and pain over the ulnar styloid process than of the radial fracture. An x-ray examination of these cases shows that this is caused by a fracture and separation of the ulnar styloid process.

There is no doubt that the successful treatment of Colles's fracture depends upon accurate reduction of the radial fracture; but there are many cases, especially those of impacted fracture of the radius, in which reduction is difficult and is not always accomplished successfully without open operation, and it is in these cases that separation of the ulnar styloid process is the cause of pain and weakness in the wrist-joint, often many months after fracture. This after-result of Colles's fracture impressed me so much that I began to pin the fractured styloid process of the ulna.

Although the fractured radius may be accurately replaced, yet if x-ray examination shows the styloid process of the ulna to be still separated, open operation should be performed in order to get good bony union of the fractured surfaces, and not the fibrous union which would otherwise result. It is by this means that pain and weakness of the wrist-joint can be prevented.

Anatomy textbooks state that arising from the styloid process of the ulna is the strong internal lateral ligament of the wrist-joint, which is attached to the rough non-articular border of the cuneiform bone, some of its fibres being prolonged to the pisiform bone. It seems to me that if this strong internal lateral ligament of the wrist-joint is rendered useless by want of accurate approximation of the fractured ulnar styloid, where this separation is shown by x rays to be present the only thing to do to prevent resultant pain and weakness is accurately to approximate the fractured surfaces and pin them into position and ensure sound bony union.

In those cases of impacted Colles's fracture where reduction is impossible because the fractured lower end is caught up in the pronator quadratus muscle and open operation is necessary, then, should there also be a complicating fracture of the ulnar styloid, this too should be operated upon. Hence it seemed to me common sense that the fracture of the ulnar styloid process should not be overlooked. I have devised an open operation which is, I understand, original—it is very simple and takes only a few minutes to perform.

A vertical incision is made directly over the fractured ulnar styloid, and the fractured surfaces are exposed. They are found separated by several millimetres (as shown by the skiagram), and frequently the distal end of the fractured styloid process is so pulled upon by the strong internal lateral ligament that it is rotated as well as separated, and its base tilted upwards and towards the extensor surface of the forearm, proving that without

open operation bony union is even more impossible than it is with simple separation. (The x-ray picture will not show this tilting of the fractured tip of the styloid process.) With the thumb and index finger of the operator's left hand the fractured styloid process is accurately replaced, and, being thus held in position, an ordinary straight bayonet-shaped needle is, with a hammer, driven through the fragment into the lower end of the ulna in a direction downwards and slightly towards the flexor and radial side of the forearm. When the needle has been driven sufficiently far to fix the styloid fragment the needle is cut off with wire-clippers, the fascia replaced, and the wound sewn up. The forearm is placed on an ordinary Carr's splint for seven to ten days, after which the splint is discarded, the stitches removed, a firm bandage applied, and massage and passive movements started forthwith.

This operation is very simple and takes only a few minutes to perform, and I maintain that where, with separation of the fractured surfaces, this fracture complicates a Colles's fracture, the pinning of the styloid ulnar process should always be performed, and will prevent resultant pain and weakness of the wrist-joint. But at the same time it must be understood that accurate radial reduction is the first and foremost object in the treatment of Colles's fracture.

The x-ray photograph is from a recent case which I consider typical, because after accurate radial reduction there remained separation of the ulnar styloid process. The patient was a lad aged 16, and I feel confident that without open operation and pinning of the ulnar styloid he might have had a permanently weak wrist which would have interfered seriously with his efficiency in after-life; whereas he now has firm bony union of the fractured styloid process and as strong a wrist-joint as he had before his accident, without any pain, weakness, or deformity.

CONGENITAL ABSENCE OF THE PECTORAL MUSCLES.

BY

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PARTIAL or complete absence of the pectoral muscles is a condition comparatively frequently met with, and in a series of cases of congenital absence of muscles collected by Bing¹ loss of the pectoralis major (usually the pars sterno-costalis) and of the pectoralis minor together was the commonest abnormality to be present (28 per cent. of the total); absence of the pars sterno-costalis of the pectoralis major alone is the next most frequent type of abnormality, and was present in 9 per cent. of the cases. These figures are probably too high, owing to the fact that in the ordinary routine examination of patients this abnormality is very readily noticed, while the detection of most of the other muscular defects requires a more detailed examination.

A case of complete absence of both pectoral muscles on the one side is recorded by Severn,² but the absence of both major and minor is a very rare occurrence—usually the clavicular part of the pectoralis major remains, and often undergoes considerable hypertrophy. Absence of the