

HIP JOINT ARTHROGRAPHY AFTER JUDET ARTHROPLASTY

By

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The treatment of the degenerative processes of the hip joint is, independently of their origin, a problem which is far from solved. Various surgical techniques have been tried out but each one has had its disadvantages and not one has produced such good results that it can be accepted as a routine technique.

In particular great hopes were aroused when the brothers Judet (3) in 1949 published an account of their experiences with the surgical technique incorporating the acrylic prosthesis and initiated by them in 1947. Many believed that the ideal operational method for certain forms of arthrosis deformans coxae had been found. Some, however, were apprehensive lest the surface of the prosthesis should be gradually worn away and result in the loss to the caput surface of its round even contour, thus preventing it from fulfilling its purpose; others feared that the prosthesis stem would work loose by degrees from its fixation in the column. Henrichsen, Jansen and Krogh-Paulsen (2) have reported a case in which the prosthesis became worn. The wearing only amounted to 0.25 mm. however, after the prosthesis had been functioning for one year.

A number of other complications have been published in the literature. Amongst other things, in their series of 100 Judet-operated patients Buxton and Waugh (1) have seen fracturing of the plastic material, the steel pin, and of the remaining part of the collum. Dislocation of the prosthesis has also been observed; this risk however, should only be present during the first five weeks after operation. Owing to such secondary complications it is important to follow-up these patients with care, inter alia with repeated roentgen tests. During such

TABLE 1

	Operated cases	Arthrosis deformans	Pseudarthrosis of the femoral collum	Caput necrosis after collum fracture	Traumatic luxation with sec. deformans
Number	8	5	1	1	1

examinations it has been found that normal roentgen photographs do not yield sufficient information concerning the position of the acrylic prosthesis, its mounting in the collum and the capsule's relationship to the prosthesis. For this reason we have attempted to make further progress with hip joint arthrography and we have now made use of this method in 8 Judet-operated cases.

Several different methods of puncturing the hip joint have been reported (4, 5, 6). In our cases the joint was punctured on its anterior aspect, a few cms. laterally from the blood vessel. Under local anaesthesia a long lumbar puncture needle with a mandrin was pressed in towards the joint. When the capsule was pierced an anaesthetic was injected into the joint. Following this 10 ml. 35 % Umbradil (Astra) were also injected. Thanks to our continuous X-ray check data was obtained concerning the optimal filling out of the joint and about the distribution of the contrast medium. Stereoscopic pictures with vertically directed rays were taken later and afterwards lateral projections. No complications were noticeable and in a number of cases reexamination was carried out through the out-patient department.

Examinations were pursued 1-12 months after the operation. In table 1 appear those cases of disease which were operated on. The majority of these are cases of arthrosis deformans coxae.

In all cases at operation a good adjustment of the prosthesis both in relation to the acetabulum and in relation to the collum stump was achieved. In 3 cases an anterior excision of the capsule and in 2 cases suturing of the capsule were performed. In the arthrographic examination the pictures showed in four cases a good position of the prosthesis with a good fixation round the collum stump. Fig. 1 shows such an arthrogram with normal contrast medium filling around the prosthesis and with a good position of the latter in the shallow floor of the joint. In these four cases the follow-up was carried out 1-3 months after the surgical intervention. In two cases an obvious discrepancy was present in the adjustment of the prosthesis to the collum stump. At operation this was considered to be good, but the arthrogram

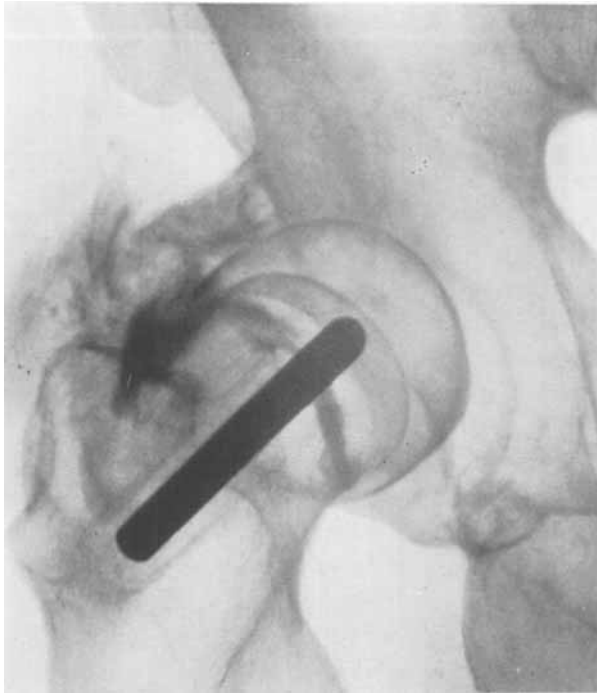


Fig. 1.

Normal case with contrast medium filling around the prosthesis and with a good position of the latter in the shallow floor of the joint.

exhibits contrast medium collecting beneath the head of the prosthesis (Fig. 2) and in one case along the pin also (Fig. 3). This discovery may either intimate that the adjustment was not as good as the surgeon had hoped or that bone resorption occurred beneath the prosthesis a few months after weight-bearing. The latter would clearly bring about less secure fixation for the prosthesis in and around the collum stump. In three cases in which arthrography was not performed until 6–12 months after operation, only an insignificant amount of contrast medium could be injected into the joint. In these cases the contrast collected in the lateral recess and from there spread upwards to the lateral part of the joint head but not around this. Since those cases which exhibited good contrast filling of the joint were examined within 3 months after operation and the remainder only 6–12 months afterwards, this should indicate either that shrinkage of the capsule and of the periarticular tissue occurred or again that the capsule became firmly glued to the head of the prosthesis owing to reaction in the surrounding tissue.

In one case in which a normal arthrogram was obtained 5 weeks



Fig. 2.

Arthrogram with contrast medium collecting beneath the head of the prosthesis.

after operation, re-examination after 9 months revealed no change in status. In this case there was no difficulty in puncturing the joint and the contrast medium spread around the prosthesis with ease. Successive follow-up may show to what extent the presumed periarticular shrinkage of tissue is general or not.

No fracturing or defects in the plastic material could be discovered and it is probable that these would easily be detected by this method of examination.

Our series is certainly small but the impression left with us is that arthrography forms a valuable addition to normal general radiographic pictures and to clinical examination. We have in consequence obtained considerably more reliable information concerning the adjustment of the acrylic prosthesis to the acetabulum and to the collum. Furthermore we have assembled data on the relative size of the joint. As we understand it therefore, arthrography ought to be performed, in part, directly after the surgical intervention, before the joint is subject to load, and in part, after weight-bearing for some months. Thus we may discover whether any possible secondary complications

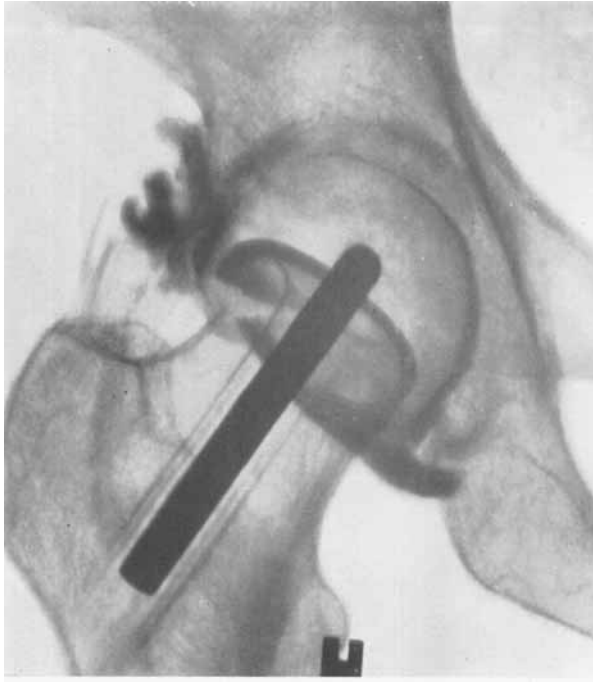


Fig. 3.

Arthrogram with contrast medium collecting beneath the head of the prosthesis and along the pin.

have arisen such as atrophy of the collum stump, shrinkage of the capsule, erosion of the prosthesis etc.

SUMMARY

8 cases are discussed in which arthrograms of the hip joint were taken after a Judet arthroplasty and the authors recommend this examination as a valuable supplement to clinical examination in obtaining more complete information concerning the relationship of the prosthesis to the collum, the joint cavity and the capsule.

RESUME

Discussion de 8 cas dans lesquels les arthrogrammes de l'articulation de la hanche ont été faits après une arthroplastie Judet. Les auteurs recommandent cet examen comme un complément précieux à l'examen clinique et permettant d'obtenir des informations plus complètes en ce qui concerne le rapport entre la prothèse et le col, l'articulation et la capsule.

ZUSAMMENFASSUNG

8 Fälle von Arthrographie nach Judets Hüftgelenksplastik werden besprochen. Die Verfasser empfehlen diese Untersuchungsmethode als eine wertvolle Ergänzung der klinischen Untersuchung, da man durch sie einen vollkommeneren Aufschluss über die Beziehung der Prothese zum Femurhals, dem Gelenk und der Kapsel erhält.

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