ERIK SEVERIN, STOCKHOLM:

ARTHROGRAPHY IN CONGENITAL DISLOCATION OF THE HIP

In the Orthopedic Clinic of the Stockholm V.F.A. a comprehensive reexamination is now being carried out on patients who in the past have been treated for congenital dislocation of the hip. Even though this examination yet is far from being concluded, it can be said already that the late results are much worse than expected. As a part in our efforts to reach to an improved technique of treatment, since the spring 1937 we have carried out arthrographic studies on dislocated, subluxated and normal hip-joints. As a rule, the arthrography is performed in direct connection with reposition so that arthrographic pictures of the hip-joints are obtained also after reposition. Furthermore, on autopsy material we have carried out the usual form of arthrography, and also arthrographic studies with a roentgen-proof that later solidifies, so that the "fixed arthrogram" can be dissected out and studied in detail.

In ordinary arthrography we employ a 17.5 % perabrodil solution which is absorbed rapidly, and does not irritate the joint. The puncture is commenced anteriorly, starting one finger's breadth laterally to the femoral artery. The needle is introduced posteriorly (dorsally) to this blood vessel and into the joint. There can hardly be any difficulty in this puncture technique if only one is precisely orientated anatomically.

Fig. 1 shows arthrography of a normal hip-joint: the injected contrast substance accumulates to form a ring (A) round the neck of the femur at the reflected margin of the capsule.— As the capsule is not attached to the cartilagenous margin of

the socket itself, but higher up, we get in the angle between the capsule and the limbus another contrast ring (B), the upper lateral part of which projects as a sharp spine, the limbus spine (T). Between the two contrast rings we have the zona orbicularis. Medially and inferiorly in the arthrogram, between two accumulations of contrast substance (C and D) there is seen a notching corresponding to the transverse ligament. By suitable projection it can be seen that the medial contrast spine is divided by the attachment of the ligamentum teres.

The arthrogram of a *normal hip-joint* must meet the following requirements:

1) The limbus spine should lie on, or possibly a few millimeters above the horizontal line through the Y-cartilage.
2) One half or more than one half of the caput should be enveloped by the cartilagenous socket.
3) There must be no large "contrast sea" in the bottom of the socket.

In *subluxation* the limbus spine will lie considerably above the horizontal line through the Y-cartilage; a smaller portion of the caput will be enveloped by the cartilagenous socket; and in the bottom of the socket we find a greater or smaller "contrast sea".

If the head of the femur has left the socket completely—*i.e.*, in a case of complete *dislocation*—the limbus squeezes the caput medially, and the limbus spine disappears. In the greatly elongated capsular tube the ligamentum teres is more or less conspicuous (Fig. 2, E.).

Besides the features mentioned above, an arthrographic examination gives also a good idea about the size and shape of the head of the femur.

In connection with this paper a number of pictures were shown and discussed, demonstrating different types of arthrograms, besides series of arthrograms taken before and after reposition.

(The paper will be published in exte ıso in The Journal of Bone and Joint Surgery.)

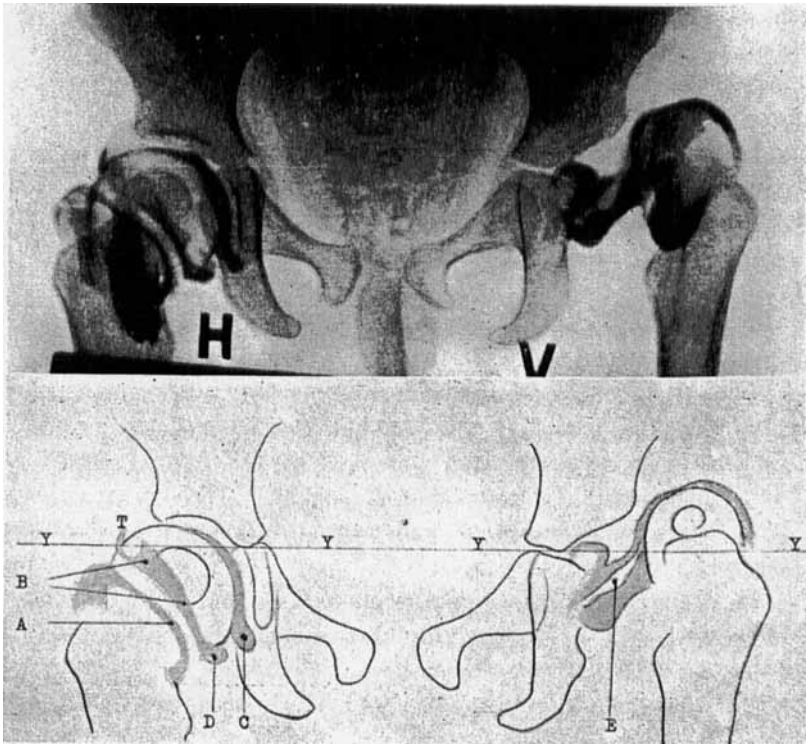

Fig. 1 and 2.

A: Contrast ring round the neck of the femur.
B: Contrast ring along the cartilagenous margin of the socket.
C: Accumulation of contrast substance medial to the transverse ligament.
D: Accumulation of contrast substance lateral to the transverse ligament.
E: Lig. teres.
T: Limbus spine.
Y: Horizontal line through the Y-cartilage.

DISCUSSION:

Guildal, Copenhagen:

G. had tried arthrography of the hip in cases of congenital dislocation of the hip, especially in order to obtain information about the condition of the isthmus, as a narrow isthmus is claimed to give indication for operative reposition. G. had not found

any evidence in support of this assumption and, on the whole, he had not found that arthrography offered anything of practical value, but his experiences with this diagnostic method were yet rather limited.

Waldenström, Stockholm:

Dr. Guildal thinks that this method gives us no information of value and hence there is no particular reason to adopt it among the routine methods of orthopedics.

I beg to discuss the latter point first, as here we agree completely. It has never been my idea to employ this method except for entirely scientific purposes.

In our clinic we use this method only for the purpose of making it possible to study the surfaces of the joint before and after reposition of the dislocation. The method has increased our knowledge in this respect, so that we have been able subsequently through our arthrographic studies to modify our technique of treatment in a way we hope will improve the results of the treatment.

This whole investigation was taken up in order to try to find out why we obtain, to put it mildly, such poor results with the prevailing treatment of the congenital dislocation of the hip. It has never been my intention to employ arthrography in congenital dislocation except for certain scientific purposes, and I hope it will not be adopted in other clinics merely "because it is the right thing to do".