

AMNION NODOSUM

by

PARVATI K. MALKANI,* F.R.C.O.G., F.A.C.S., F.A.M.S.

and

KAMAL BHASIN,** M.D.

Introduction

Amnion Nodosum is a pathological condition of the amnion in which the foetal surface of the amniotic membrane is studded with multiple greyish nodules. The term "Amnion Nodosum" was coined by Landing (1950) a lesion previously known as "amniotic nodules" (Amnion Knotchen). This lesion of the placenta is apparently associated with deficient secretion of foetal urine.

Landing (1950) reported 8 cases of amnion nodosum occurring in the placentas of stillborn infants or infants with major congenital renal anomalies. In 1958, Scott and Bain published 8 cases, all of which were associated with gross congenital abnormality of the renal tract. Jeffcoate and Scott (1959) reported 5 more cases associated primarily with a shortage of liquor. Bourne (1962), reported 5 cases associated with oligohydramnios and renal agenesis. Only 48 cases of this condition have been reported till 1962.

The exact mechanism whereby the nodules are formed is difficult to understand. When a shortage of liquor prevents the free movement of squamous cells normally shed from the foetal skin, they become adherent to the amnion producing secondary degenerative changes in the amniotic epithelium (Landing, 1950; Scott and Bain, 1958; Jeffcoate and Scott, 1959). Blanc (1961) states that nodules may be associated with premature and prolonged rupture of the membranes and the transfusion syndrome of uniovular twins. Jeffcoate and Scott (1959) state that this lesion was considered to be a developmental error, possibly of genetic origin. However, Landing (1950) is of the opinion that if amnion nodosum is simply the result of processes set under way by failure of foetal urine secretion, it may occur in some cases of intrauterine death of normally formed fetuses or if abortion is delayed for a sufficiently long period after the death of the foetus.

The paucity of reported material probably results from inadequate examination of the amniotic membrane immediately after delivery. It is also possible that small nodules are not seen or that their significance is not appreciated so that the secundines are destroyed long before the clinical condition of renal agenesis is recognised.

*Professor of Obstetrics & Gynaecology.

**Senior Research Officer.

Dept. of Obst. and Gynec., All-India Institute of Medical Sciences, New Delhi-16.

Received for publication on 3-10-1969.

During the course of a detailed study of the placenta and membranes from 438 consecutive deliveries at the All-India Institute of Medical Sciences Hospital, New Delhi, a nodular condition of the foetal surface of the amniotic membrane was observed in three instances. In two instances the condition occurred in cases in which the babies had no external congenital abnormality, and liquor was deficient in these two cases. There was stage IV placentitis in these two cases. In one case the baby had inencephaly and anencephaly and this was associated with hydramnios.

Case Report

Mrs. M., 22-year-old, P1 + 1, 38 weeks pregnant was admitted to the labour room. The foetal movements had ceased one week previously. The membranes had ruptured 3 days before admission. A macerated female foetus weighing 2700 gms. was delivered. Liquor was scanty and thickly stained with meconium. The foetus had no visible external congenital malformation. Examination of the secundines disclosed placenta of circumvallate type. A severe degree of infarction was seen in the placenta. There were small circular, umbilicated nodules, of greenish yellow colour, situated over the foetal aspect of the amnion, near the placental cord junction and extended to 1 to 2 cms. of the umbilical cord. The nodules varied in size from barely visible to 3 or 4 millimeters in diameter. A characteristic feature of the nodules was that they could be picked off the underlying amnion, leaving a semitransparent saucer-shaped depression with somewhat ragged edges. They move with the amnion when it slides on the chorion. The nodules were friable and could be broken into tiny fragments.

Histology

The nodules consist of masses of keratinized squames embedded in an acidophil matrix Fig. 1. The structure of the nodule in a vertical section gives the appearance of inefficient whorl formation. It appears

to involve the whole thickness of the amnion. The cuboidal cells of the amniotic epithelium are generally absent in the region of the nodules but there is no sign of squamous metaplasia.

In amnion nodosum there is merely a disorderly mass of keratinized squames loosely embedded on the amnion. Their attachment is so unstable that it is almost certain that they are of foetal origin, and that they represent deposits of squames shed from the foetal skin. The epithelial cells adjacent to the tiny nodules show "basket" deformity. Extensive necrosis of the decidua together with degeneration of larger areas of chorionic trophoblast are present and at places replaced by a fibrin like deposit. The nodules of the umbilical cord are essentially similar to those of the amnion. There was stage IV inflammation in two cases. (Fig. 2, 3 and 4).

Although amnion nodosum was observed in only 3 out of 438 placentas examined, it need not be considered just an incidental finding of unknown significance. It seems that if a careful search is made for this lesion of the amnion in all cases of stillbirths, congenital abnormalities, oligohydramnios or hydramnios, amnion nodosum may be detected more often.

References

1. Blanc, W. A.: New York, M.J., 61: 1492, 1961.
2. Bourne, G.: The Human Amnion and Chorion, Chicago, 1962, Yearbook Publishers, Inc. p. 196.
3. Jeffcoate, T. N. A. and Scott, J. S.: Canad. Med. Ass. J., 80: 70, 1959.
4. Landing, B. H.: Am. J. Obst. and Gynec., 60: 1339, 1950.
5. Scott, J. S. and Bain, A. D.: Proc. roy. Soc. Med., 51: 512, 1958.

See Figs. on Art Paper VII