Subdural Hematoma and Effusions in Infants

by

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This is a hemorrhage, resulting from tearing of the cortical veins which is productive of few or no clinical manifestation at the time. But the tissue response gives rise to an expanding lesion that may reach a size for greater than the original hematoma. In this fashion, a spongy tumor develops that consists of proliferating capillaries and a brownish hemorrhagic fluid (pachy-meningitis hemoragica interna).

With Dr. Ameli, we have seen eleven cases in the last year which may be, in general, classified in 2 groups: eight with no clear etiology and the three others in the course of treatment for meningitis.

It is generally agreed that trauma is the major etiological agent. Sometimes it is evident by a skull fracture, and abnormal presentation of fœtus or premature birth. Often the cranial trauma takes place in the normal delivery by the usual pressure of the fœtal head. Injury of the brain is also cited in cesarian section. In such cases the relation of trauma is not clear. The other causes of hematoma: Blood diseases, scurvey, malnutrition, recurrent infection, congenital syphilis etc., have not been seen in connection with our cases.

Symptoms of such subdural hematoma commonly do not develop until months after birth and are bizarre and often obscure.

An illustrative case is the following:

Obs. 1.- An 18 months old baby, whose parents were resident in South of Iran, was sent to us for treatment of undiagnosed and continuous but irregular fever since the age of 2 months. The child's feeding had always been a problem All the antibiotics had been tried with no result. On examination the weight was six kilograms, very thin and emaciated. The child could not hold up his head and of course

could not stand or walk. No abnormality in the usual examination of C. S. F. Fontanells were closed, fundi normal.

Blood and urine examination gave normal results. X-Ray of skull did not show any abnormality.

At first it was thought that the child may be a mental defective. For diagnogtic purpose two burrholes were made by Dr. Ameli in the usual positions (temporal regions). On both sides subdural aspiration produced xanthochromic fluid with more than 3 grams of protein per liter. Daily aspiration was carried out through the burrholes. On the right side the condition cleared up, but on the left side after two weeks the membrane had to be removed through a large osteoplastic flap.

This example shows us that suspicion is great when a child has cerebral dysfunction, is chronically ill, vomits repeatedly, has convulsions, or do not seem to develop adequately.

This child had a hemorrhage over the upper surface of the brain, as it is the rule, and the bleeding was bilateral. (of 21 cases studied by Kinley et al. 15 were also bilateral).

Accurate diagnosis can be made only by subdural puncture. Ingraham and Matson state that more than 1cc. of subdural fluid is indicative of pathology. In the opinion of Rogatz more than 1cc. of subdural fluid with a protein greater than 35 mg°/o is pathognomonic of subdural hematoma.

Acute subdural hematoma, as in the groupe with definite birth injuries is best treated by aspiration since no membrane is usually present at this early stage.

Chronic subdural effusion is most satisfactory treated by repeated subdural taps, if the condition does not clear up after two weeks then the membrane has to be removed by an open operation. The latter is most important because the membrane prevents normal brain expansion. Constriction of the brain is responsible for later mental retardation in most of these infants.

Careful attention to fluid and protein balance aids greatly in reducting operative morality. The amount of protein and fluid lost in the subdural space may be 5 and 10°/o of the daily requirements. Protein loss is one reason why these infants are so pale and undernourished when seen by the physician.

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The second causative factor in S. H. is purulent meningitis. The

incidence may be as high as 50%.

According to Arnold (Montreal) indications for subdural taps in a child with purulent meningitis are a bulging fontanel which is not relieved by lumbar puncture; failure to make good clinical response after 48-72 hours of adequate therapy; presence of an area of erythema, edema and local heat involving the region of anterior fontanel; focal convulsions at any time during meningitis; generalized convulsions after an initially good clinical response to therapy; persistant vomiting and disturbance in auditory acuity or changes in the optic disks during meningitis.

These effusions are commonest in pneumococcal and hemophilous influenzae meningitis, rare in meningococcol meningitis and are due to thrombophlebitis of emissory veins crossing the potential subdural space.

The following is an example of post meningitis effusion:

Obs. 2-A 7 Months baby was admitted with severe pneumococcic meningitis. He was treated by usual antibiotics and the child was discharged home after 10 days. He was readmitted as he was having convulsions. The fontanel was bulging.

Subdural tap gave a blood stained fluid from the right side. On standing the supernatent fluid was xanthochromic. No organism found in the fluid. Daily aspiration was continued for 10 days and the child's condition rapidly improved.

Two weeks after cessation of treatment the aspiration was attempted with negative result.

Arnold (1951) believes that examination of the subdural space is mandatory in all infants who have an open fontanel or cranial sutures which allow entry of a needle. This should be done between the fifth and seventh day of the disease, unless one of the indications for subdural examinations arises earlier.

Riley relates the case of a 4 months old infant with pneumococcic meningitis complicated by deafness. The relief of auditory impairement followed the evacuation of the subdural space.

These subdural lesions are probably of importance in recurrences of meningitis and linked to later focal brain damage.

The problem of subdural hematomas and effusion concern then three specialists: The obstetrician to avoid them, the pediatrician to find them out early enough and the neurosurgeon to treat them.

Résumé

L'auteur résume onze obs. d'hématome sous dural et donne le détail de 2 cas: le 1er appartenant à un enfant qui a eu pendant 18 mois une fièvre irrégulière, résistante aux antibiotiques. Le développement psychomoteur était retardé. L'enfant était taxé idiot. La ponction sous durale montra un liquide xanthochromique avec 3 gr. d'albumine par litre. Le côté droit s'est tari par les ponctions et le côté gauche a été drainé chirurgicalement. (la résections de membrane).

Le 2ième est l'histoire plus classique d'un nourrisson de 7 mois atteint de méningite pneumococcique réadmis dans le service pour les convulsions et dont l'étiologie a été démontrée, par la ponction sous durale, être un hématome post-méningitique.

Il est important de reconnaître ces effusions si l'on veut éviter les séquelles neurologiques graves aussi bien que les rechutes des méningites purulentes.

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