SUBDURAL HYGROMA COMPLICATING MENINGITIS

were due to high levels of estrogens circulating in the blood for long periods of the pregnancy.

SUMMARY

(1) Spinal cord symptoms and signs in a case of extradural hemangioma became manifest during the last month of pregnancy, improved rapidly during parturition, and completely disappeared after surgical removal.

(2) Exacerbations and remissions in symptoms are considered in relation to mechanical obstruction to venous drainage as a result of an enlarged pregnant uterus, and to possible estrogenic factors giving rise to increased vascularization.

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REFERENCES


SUBDURAL HYGROMA COMPLICATING MENINGOCOCCIC MENINGITIS

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To the list of complications of meningitis must be added subdural hygroma (hydroma or effusion in the subdural space), which has become prominent only recently as a complication of acute bacterial meningitis. The majority of cases of meningitis in which subdural hygromas have been found have been due to Haemophilus influenzae. However, cases in which D. pneumoniae, Salmonella sp., paracolon bacillus, Ps. aeruginosa, and N. meningitidis were the etiological agents have also been reported. The relative paucity of information in the literature in regard to subdural hygroma as a complication of meningitis, and the fact that the patient

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in the following case required early surgical treatment with ensuing complete recovery prompted this report.

CASE REPORT

R.B., a 5-month-old white male infant, was admitted to Children’s Hospital, Washington, D.C. (Record #51-1815), on Feb. 11, 1951, because of fever of 8 hours’ duration. Past history was negative.

Examination. The infant was well-developed, well-nourished, acutely ill, and lethargic, with stiff neck, bulging fontanelle and hyperactive deep reflexes. Temperature was 103.6°F. (39.8°C.). CSF showed 485 cells, glucose 0 mg. per cent, protein 330 mg. per cent and numerous gram negative intracellular and extracellular diplococci on smear; culture yielded N. meningitidis. Blood culture yielded N. meningitidis. Initial WBC was 3,350; lymphocytes 75 per cent.

Course. Chloramphenicol was given intramuscularly (150 mg./kg.) for 6 days and then changed to 250 mg. orally every 6 hours for 6 days. Sulfadiazine was given orally (gr. ii/lb.) for 5 days.

The therapy of choice in acute meningococcal meningitis is the combined use of chloramphenicol and sulfadiazine. Both of these antibiotics have been found to pass the thecal barrier. Initial therapy with these antibiotics is usually parenteral and is changed to oral therapy after subsidence of the acute phase of the illness. The chloramphenicol sensitivity test in this case was reported “sensitive to less than 10 mcg./cc.”

Temperature dropped to normal in 12 hours after start of therapy but began a gradual rise to 101.8°F. and maintained a plateau at 101.8°F. for 44 hours (Fig. 1). At this point sulfadiazine was discontinued with the possibility of drug fever in mind. Four hours after discontinuance of sulfadiazine the temperature began a drop to normal which was maintained throughout the hospital stay, excepting only a slight postoperative rise.

The fontanelle became normal after the initial spinal puncture but was again bulging on the 4th day of treatment. Spinal puncture at this time had no effect on the fontanelle; the fluid was negative to culture. Blood culture was also negative. Bilateral subdural taps were done. The left side yielded 20 cc. and the right 10 cc. of xanthochromic fluid. The left sub-
dural fluid contained 299 cells, protein 108 mg. per cent, sugar 8 mg. per cent. The right subdural fluid contained 295 cells, protein 137 mg. per cent, sugar 7 mg. per cent. Smear and culture of the fluid from both sides were negative. Five subdural taps were done over the following 11-day period. No fluid was obtained from the right side after the second tap, but increasing amounts were obtained from the left, the protein rising as high as 1300 mg. per cent.

Operation. On the 18th day of the illness a left frontoparietal craniotomy was performed. It was felt that the relative chronicity of fluid formation in the left subdural space indicated an organized membrane, removal of which would necessitate bone-flap rather than trephine-drainage. Reflection of the dura disclosed a delicate but relatively tough neomembrane, the appearance of which indicated an inflammatory origin, extending over the entire cerebral hemisphere. Much xanthochromic fluid was retained in the membranous sac. [Culture of this fluid disclosed no growth.] The membrane was teased from its attachment to the dura and arachnoid and removed in toto in the fashion applied to the treatment of subdural hematomat.2 The subdural space was irrigated thoroughly, the dura closed, and the wound sutured without drainage.

Pathologic Diagnosis: “Granulation tissue.”

Postoperative course was complicated only by a mild upper respiratory infection, the infant being discharged on March 8, 1951, the 26th day after onset of illness, with no apparent sequelae. Examination 1 month after discharge revealed no evidence of neurological disturbance. The operative area had healed by primary intention. The fontanelle was soft, and the child was alert and playful. There had been no vomiting or retraction of the head, and the appetite was excellent. EEG done on March 27, 1951, 19 days after discharge, was entirely negative. It was apparent that the decision not to investigate the right subdural space because of absence of fluid there after pre-operative taps was justified.

DISCUSSION

From a survey of the literature it is apparent that the occurrence of collections of subdural fluid in cases of acute bacterial meningitis is not uncommon, especially in infants 1 year of age or under. This complication, however, is being recognized only recently.3,7 McKay, et al.3 state that the most significant indication of the presence of such fluid is “persistent fever after apparent bacteriologic cure.” It is self-evident that bulging of the anterior fontanelle in an infant also should suggest subdural effusion as a possible cause, especially in light of recent experience, if meningitis exists or has existed.

This case represents the early development of a subdural hygroma with rapid recurrence of xanthochromic fluid of high protein content after all cultures were reported negative. It was felt that encapsulated fluid was present and that surgery with removal of the membrane was necessary. Had the fluid decreased in amount to the presumed normal of 0–2 cc. with repeated taps, craniotomy would not have been done. As noted, subsidence of hygroma on the right in this patient after several taps indicated that needle-aspirations had been sufficient to control the contralateral process.

As Ingraham and Matson1,2 and others4,8 have indicated, the formation of subdural hygromas or effusions is not uncommon after head injury in infants and adults. The mechanism of pathogenesis—flap-valve tear in the arachnoid of the vertex with admixture of blood and cerebrospinal fluid in the subdural space—is readily visualized when trauma initiates the process. How subdural hygromas with formation of fluid and organization of membranes complicate successfully treated meningitis is more difficult to explain. Complete removal of membranes with freedom for the growing brain to expand thereafter is the surgical procedure of choice, if needle-aspiration of the subdural fluid cannot keep fluid-formation in check.
SUMMARY

1. A case of subdural hygroma with membrane formation complicating meningococccic meningitis has been presented.

2. Early surgical therapy in cases of this type must be strongly considered.

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INTRACRANIAL ACTINOMYCOSIS

REPORT OF AN UNUSUAL CASE

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Actinomycosis of the central nervous system is unusual but not extremely rare. A review of the literature from Ponfick's first case of central nervous system involvement reported in 1882 to Hamby's mention of a case involving the parietal lobe in 1950, indicates that there have been approximately 132 cases reported. It is not felt necessary to refer in detail to all of these cases of actinomycosis with central nervous system involvement because of the excellent reviews of Friedman and Levy in 1937, Cope in 1938, and Lewin and Morgan in 1947. Since 1947, only 3 cases have been reported: one by Jacobson and Cloward, a surgically treated case of cerebral metastatic actinomycosis reported by Schneider and Rand, and the previously mentioned case of Hamby. The case prompting the present report is unusual for two reasons: first, because of its method of spread into the intracranial cavity and secondly, because of the opportunity to follow the course of the disease over a period of several years.

Most of the reports stress the pathological processes evoked in the central nervous system by the organism and secondly, the portal of entry and modes of invasion and dissemination. The pathological processes may be divided into (a) localized, that is, abscess and neoplastic-like collections, and (b) diffuse, that is, meningitis and diffuse extradural involvement. Meningitis with or without concomitant abscess formation is the most common type of central nervous system involvement. The meningitis was almost always basilar and very purulent and there seemed to be a