Congenital depression of the skull. Report of two cases

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Introduction

Congenital depressions of the skull are due to mechanical factors that operate either before or during birth. Exaggerated or prolonged pressure applied to the head of the embryo in utero or during delivery may result in depression of a localized area of the skull. The clinical presentation is directly associated with the size. Theoretically, depressions of more than 5 mm may impinge on the cerebral cortex, resulting in localized compression of the brain, with resultant cerebral edema and decreased blood flow. Due to depression simultaneous fracture of the skull may be produced. Thus a distinction must be made, between congenital depressions with or without fractured skull [1]. Treatment depends on intracranial complications. Traditionally, depressed skull fractures have been considered as an indication for neurosurgical elevation [1-3]. Two cases of congenital depressions of the skull, with fully spontaneous resolution at the age of six and three months respectively, are reported.

Case Reports

Case 1

A female newborn, 3200 grams, was delivered after 38 weeks of gestation by cesarean section due to fetal distress. The mother, aged 24, para 1, gravida 1, was healthy and no pregnancy complications were noticed. Immediately after birth, the neonate needed resuscitation. Tracheal intubation and mechanical support ventilation took place and the newborn was transferred to the intensive care unit.

Physical examination revealed a depression 5 cm in diameter and 2 cm in depth on the upper and back part of the right parietal bone. The overlying skin was normal without edema or hematoma. No other abnormalities were noted and neurological examination was normal.

Skull X-ray showed a deformed skull depression without fracture. Laboratory examinations were within normal limits. Chest X-rays were compatible with transient tachypnea of the newborn. The respiratory system was mechanically supported for 48 hours. Ultrasound examination showed no intracranial abnormalities. Computerized tomography showed no obvious pathological findings in the brain parenchyma (Fig. 1). The combination of all findings concludes in chronic pressure on the skull during intrauterine life.

Due to the newborn's good health and absence of abnormal neurological symptoms, conservative non-surgical management was followed. During hospitalization her muscle tone was good and no neurological abnormality was noted. Follow-up at 2 weeks and at 2 and 3 months, revealed normal development. Magnetic tomography at 3 months follow-up showed a tendency to spontaneous resolution of the depression. At the age of six months, she was reevaluated and was found to have clinically complete disappearance of the depression. Her general condition was excellent, without pathologic findings from the physical examination and her psychomotor evolution was in agreement with her age.

Case 2

A male newborn, 2600 grams, the first of twins, was delivered after 37 weeks of gestation by cesarean section because of twin pregnancy and sciatic projection of the first embryo. The first 48 hours the newborn remained in the Maternity Clinic in good condition. The third day of his life an attack of generalized seizures was reported and the newborn was admitted to the Neonatal Intensive Care Unit.

Physical examination was normal. Laboratory examination results were within normal limits. In the first hour after his admission he presented with a new attack of seizures which were arrested successfully with anticonvulsive therapy. The electroencephalogram was normal. Computer tomography and magnetic tomography showed a deformed skull depression with fracture of the occipital bone with no picture of underlying brain damage.

Considering the absence of intracranial complications from the imaging control and the successful resolution of spasms, a

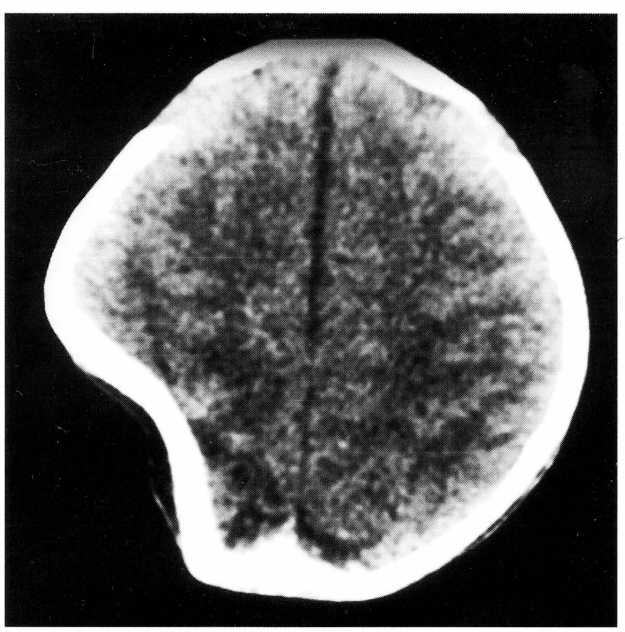

Figure 1. — Depression on the upper and back part of the right parietal bone.

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Figure 2. — Depression with fracture on the right occipital bone.

conservative non-surgical management was followed. At discharge, 20 days after birth, the newborn was in good health. Follow-up at 1, 2 and 3 months showed normal development. At 3 months follow-up computer tomography showed spontaneous resolution of the depression.

Discussion

Congenital depressions of the neonatal skull are rare. Incidence is from 1/4000 to 1/10000 births [1, 4]. Pathogenesis is usually classified into two types: deformation with or without skull fracture. The deformity is usually due to mechanical factors that operate either before or during birth [1]. Depressions present at birth and not associated with edema or hematoma of the underlying soft tissues are usually due to a long-standing, faulty, fetal position rather than to recent birth injury [5]. Severe cranial deformities may also develop earlier during fetal life, long before labor sets in owing to sustained abnormal fetal positions. Other rare causes are maternal pelvic tumors and fibromas of the uterine [1, 6, 7]. The same mechanical factors can produce fractures of the underlying bones. Diagnosis is simple as fractures can be visualized by direct inspections but roentgenograms are often made in the search for associated fractures or bone fragments that might have injured the brain [1, 5].

Depressed skull fractures have been considered as an indication for neurosurgical elevation. Some authors have proposed non-surgical treatment by either digital or negative pressure after ruling out intracranial complications [1, 3]. Spontaneous elevation of the depression during the first year without adverse residual effects has been reported [1, 3]. Computer tomography should be performed before the initiation of non-surgical treatment in order to exclude intracranial complications. Spontaneous elevation as an approach to congenital skull depression is less traumatic to the infant.

If the imaging control does not reveal lesions of the brain tissues, we believe that conservative treatment and waiting for spontaneous resolution is the best approach.

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