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Agnathia Microstomia Synotia Syndrome (Otocephaly), The First Documented Case Report in Indonesia

Case Report

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Abstract

Background: Otocephaly (OC) is a rare congenital disease with incidence of <1 newborn in 70,000 births. The infants with OC show absence or hypoplasia of the mandible (agnathia), ventromedial malposition of the ears with or without auricular fusion (synotia), and microstomia with hypoplasia or absence of the tongue (aglossia) [1].

Objective: To report a rare case of otocephaly.

Case: A female neonate was born from mongoloid parents from Manado, Indonesia. Clinical examination showed lower jaw and mandible that were not visible, extremely small mouth, "pinhole-shaped" oral fissure, and displaced ears on the front side of the neck. X-Ray showed multiple congenital anomalies in thorax and abdomen cavum.

Conclusion: Otocephaly is a rare congenital disease with extremely poor prognosis. The aetiology remains unknown but is reported to be associated with genetic and environmental factors.

Keywords: Otocephaly; Agnatia; Microstomia; Synotia; Aglossia

Introduction

In our daily practice, it is not uncommon for us to find rare cases or conditions, which we even discover for the first time and we may never get them again. This situation becomes more complex, if we are in a facility that has limitations in carrying out further examinations, including the most important the genetic testing. I believe, in a developing country like ours, especially with limited facilities, these cases are often undocumented and unreported.

The following case is an example of how our department finds rare cases, and we try to carry out as many supporting investigations as possible with our limited resources. We usually store these cases in the form of photos as personal data, and usually end up as unknown cases. Fortunately, because of the physical appearance in this case is very distinctive and clear, after further investigation by our team, we were able to identify the condition of this baby, so previously it was just a regular report, but finally we can present it so that it was documented as a case report.

Case Presentation

In December 2021, a 30-year-old woman was referred to our centre and had section caesarean at a postmenstrual age of 31-32 weeks because of foetal distress, imminent premature labour and premature rupture of membranes. It was the firstborn of mongoloid parents from Manado - North Sulawesian, Indonesia. Mother was healthy without history of diabetes, or history taking any drugs or herbal drugs during pregnancy. Mother had antenatal care routinely and ultrasound sonography from last antenatal care showed no abnormalities. A baby girl was born with weight of 1,400 g, length of 43 cm and head circumference of 28 cm. The child had Apgar scores of 1-1-2-2-3, respectively. This baby is the first child in the family. Clinical examination showed lower jaw and mandible that were not visible. The mouth was extremely small, and the oral fissure was "pinhole-shaped." Both ears were displaced on the front side of the neck. X-Ray showed multiple congenital anomalies in thorax and abdomen cavum (Figure 1).

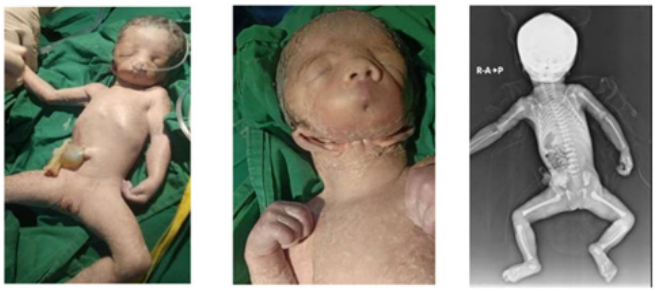

Figure 1: X-Ray showed multiple congenital anomalies in thorax and abdomen cavum.

Discussion

Otocephaly (OC); also known as dysgnathia complex, agnathia-holoprosencephaly, Agnathia Microstomia Synotia Syndrome) is a very rare congenital anomaly with an incidence of less than 1 in 70,000 births. A defect in blastogenesis causes the first branchial arch to fail to develop into the lower jawbone, parts of the ear and the anterior two-thirds of the tongue [2]. Comorbidities such as holoprosencephaly, ophthalmologic abnormalities, situs inversus or skeletal deformities often are associated [3]. Previous studies classified OC into four groups: (i) agnathia alone; (ii) agnathia with holoprosencephaly; (iii) agnathia with situs inversus and visceral anomalies; and (iv) agnathia with holoprosencephaly, situs inversus, and visceral anomalies [1].

The aetiology of this birth defect remains unknown but is believed to be associated with genetic and environmental factors. Teratogens, such as midopyrine, salicylates and theophylline have been reported [4] and could account for discordance in phenotypes of monozygotic diamniotic twins with OC [5]. Most reported cases occurred sporadic; although a few familial cases are known, indicating a genetic background [2].

It suggested that OC arises from defects in the ventral portion of the first branchial arch, which are often caused by the poor neural crest cell migration in the early embryonic stage or the premature proliferation of the embryonic disc [6]. Agnathia has been reported to be associated with the genes OTX2, PRRX1, and CRKL [7,8]. OTX2 is a transcription factor; it is expressed in the mesenchymal cells of the midbrain head and neural crest cells and distributed in the mandibular region; it has been proved to cause craniofacial malformation and holoprosencephaly. PRRX1 is associated with the expressions of cranial mesenchyme in the maxilla, frontal sinus, and mandibular prominence. In addition, some related family studies show that the disease may have autosomal dominant and recessive inheritance patterns [9].

The prognosis of OC fetuses is extremely poor, and long-term survival is almost impossible [10]. A small number of born-alive infants will die because of respiratory distress due to the absence of the mandible hindering the development of adjacent structures, which often involves the naso-mandibular complex and the oropharynx, resulting in respiratory distress, feeding difficulties, and speech and/or hearing impairment [11]. Those who survive still require additional procedures such as tracheostomy for assisted breathing and a gastrostomy tube for assisted feeding [12], with daily communication depending on nonverbal means. Mandibular distraction osteogenesis can be performed to improve the local facial appearance and a few other functions.

In this case, we still had time to do a thorax examination and bedside ultrasound, but we had no time to take the laboratory. The baby died within about 70 minutes after treatment. Another problem that we faced in this case was how to provide airway assistance through the ETT because the baby's mouth was very small. This is a challenge and future works for us if we find similar cases.

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