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LETTERS TO THE EDITOR

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Primary closure of superior partial sternal cleft in a 2-month-old girl: a case report

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To the Editor,

With great interest and attention, we read the article by Tanriverdi et al. [1]. The sternal cleft is a well-known malformation whose first descriptions date back to 1740 ("Torres à la Société Royale," London) [2]. In 1888, Lannelongue was the first to report of a sternal cleft operation. He removed only the membranous defect of the skin at the site where the sternum was supposed to be, without joining the sternal edges [3]. The first successful sternal cleft surgery dates back to 1947 when Burten performed a successful reconstruction by covering the defect with costal cartilage [4]. In 1958, Sabiston described bilateral serial dissection of the costal cartilages and wedge-shaped excision of the sternal margin [5]. Because in older children the bilateral chondrotomy, proposed by Sabiston, was not useful because of the extremely rigid chest, in 1961, Ravitch suggested covering the defect with a metal mesh and later with Teflon (1977) [6].

In the case of Tanriverdi et al., it is interesting to note that the girl did not have any respiratory symptoms at birth. Pulmonary hernia, paradoxical breathing, and dyspnea may be present with a superior sternal cleft. Symptoms did not manifest until day 43. They manifested in the form of respiratory distress, tachypnea, and intercostal and suprasternal retractions. Although no anomalies have been detected by ultrasound scan, in certain types of ectopy, the focus should be on congenital heart defects, which are not uncommon in such conditions. Although the operation could have been performed before respiratory distress, with these types of anomalies, we have time until the third month of life because the chest is the most flexible in this period, which still gives surgeons enough time to plan surgery. In this case, the operation was performed on the 59th day of life, which is within the limits. With monitoring of hemodynamic and cardiac function, the operation was performed in accordance with good surgical principles. Whenever we are able, as in this case, we should strive for the primary closure of the cleft. Primary closure in the first 3 months should not do cardiac compression, given the already mentioned flexibility of bone structures.

In our 30 years of experience, we have had only three children with this anomaly, two of whom had a cleft in the superior part [7]. The first patient was a 6-week-old female infant with an incomplete U-shaped cleft in the superior sternum, type II atrial septal defect that was not clinically significant, and grade 2 intraventricular hemorrhage. Since the prenatal diagnosis at the beginning of the second trimester, a transvaginal ultrasound was done that warned of hypoplasia in the area of the bony part of the chest. The girl was born in the 38th week of pregnancy. After birth, echocardiography was performed, which warned of an ostium secundum type atrial septal defect (4 mm). Clinical examination clearly showed pulsations of the heart muscle, especially during crying. Until the surgery, the infant was eupneic and eucardic. Surgery is indicated in the sixth week. We did the primary reconstruction of the defect. We performed a wedge osteotomy during which we obtained a V shape from the U-shaped deformity. After sternal bar refreshment, we proceeded to primary closure of the defect via transsternal non-absorbable sutures. The early postoperative course was orderly, without complications and hemodynamic instability. Control X-rays and CT of the chest were in order. The second patient was a male infant

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at 8 weeks of age, with no associated anomalies. Transvaginal ultrasound at the end of the first trimester did not indicate a defect in the chest area. The boy was born by cesarean section in the 40th week of pregnancy. After birth, a defect in the chest area was noticed, and echocardiography was performed immediately, which indicated normal morphology and function of the heart muscle. Chest X-ray and CT confirmed the diagnosis. The infant was eupneic, eucardic, good capillary reperfusion, and orderly saturation at all times. Although surgery was planned to be performed between 4 and 6 weeks, the procedure was performed at 8 weeks because the infant developed bronchiolitis at 4 weeks. We did the primary reconstruction of the defect as in the previous case. We performed a wedge osteotomy to obtain a V shape from the U-shaped deformity and closed the defect with transsternal non-absorbable sutures. The postoperative course was orderly, without complications and hemodynamic instability.

Cleft sternum without cardiac ectopy does not require urgent surgical intervention, but all authors point out that surgical reconstruction should be performed in newborns because it is in that period the child's chest is most suitable for this type of surgery due to the extreme flexibility. This has been confirmed in both this and our cases.

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MB made the concept and design of the letter, participated in the writing of the manuscript, collected the data, analyzed them, and interpreted them. BŽ participated in the study design, supervision, manuscript writing, and critical review. All authors read and approved the final manuscript.

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