CLINICAL STUDY

Timing of primary lip repair in cleft patients according to surgical treatment protocol


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Abstract: Objectives: The goal of this article is to focus on the results of meeting the primary lip repair timing in compliance with the surgical treatment protocol used at the Cleft Center, Bratislava. Methods: Retrospective analysis of 45 initial lip repairs among all cleft operations in a period of 3 years (2006–2008). The object of the analysis was the “day of surgery after birth”. The defined time period was that of 90th–180th day (3–6 months) for the initial lip surgery according to surgical protocol. Histories of patients who underwent surgery before the 90th or after the 180th day were examined. Results: 40 patients (89%) underwent primary lip surgery in the defined time period of 3–6 months following the surgical treatment protocol. 5 patients (11%) underwent primary lip surgery at a later age than 6 months only because of pediatric reasons: recurrent bronchopneumonia (3 patients), recurrent respiratory infections plus prematurity (1 patient) and sideropenic anaemia (1 patient). There were no operative and postoperative surgical or anaesthesiological complications. There were only serious pediatric reasons for surgery delays. Conclusion: The determined timing of primary lip closure in 3–6 months is considered adequate according to the achieved results. In most of the cases this timing offers reliable conditions to perform early surgery in baby patients. The successful realisation of the primary lip repair in the defined time period of 3–6 months is very important for proper timing of subsequent surgeries as well as for that of consecutive completion of treatment (Tab. 1, Fig. 1, Ref. 8). Full Text (Free, PDF) www.bmj.sk.

Key words: primary repair cleft lip timing.

The optimal timing and techniques of cleft lip and palate repair still remain controversial. Every cleft center throughout the world follows its own surgical treatment protocol based on the multidisciplinary team’s experience. The fulfillment of the surgical treatment protocol should be the quality indicator in treatment of cleft patients.

The Cleft Center in Bratislava is the only multidisciplinary cleft-counselling and treatment center in Slovakia founded at the Clinic of Plastic Surgery. It provides an average of 270 primary cleft repairs and secondary corrections per year (1). The surgical treatment at the Cleft Center, Bratislava adheres to the surgical treatment protocol according to the Practice Guidelines of Eurocleft Project based on two-stage closure of cleft lip and palate (Tab. 1) Presurgical orthodontics after birth are used to align the segments of premaxilla before the lip surgery, if necessary. Surgical treatment starts with lip repair at the age of 3–6 months, using Millard’s technique (2) in unilateral cleft lip and Black’s technique (3) in bilateral cleft lip. At the age of 6–12 months, the surgical treatment continues with palatal closure using the Wardill-Kilner’s technique (4). About one half of the primary palate repairs require iliac crest bone graft in order to fill in the gap in the dentoalveolar arch. Other specificities of the surgical treatment protocol are in Table 1. Under proper conditions, the ideal timing of the lip closure is at the age of 3 months and that of palatal closure at the age of 9 months. Early surgical velopharyngeal reconstruction and palatal closure in the first year of age is very important for achieving the standard of speech quality and articulation. The controversy as to the best time to close the lip cleft is still in progress. Some centers have advocated surgery in the early neonatal period with a theoretical benefit in scar appearance. To minimize the anesthetic risks and preoperative requirements, many clinics follow the “rule of over 10” as a criterion for lip surgery, namely weight over 10 pounds, hemoglobin over 10 grams, age over 10 weeks. At the Cleft Center, Bratislava, every patient is evaluated strictly individually. In general, the surgery is indicated when the patient is healthy (at least 2 weeks without infection), is not anaemic, has adequate muscle tonus, has no respiratory disorders, has developed the cough reflex, was vaccinated more than 1 month before the surgery, and finally when the patient has physiological values of the required laboratory examinations. From this point of view, the proper time for repair is when the child is about 3 months old. At that time the child is more able to withstand the stress of surgery, the risks of anesthesia are lower and lip elements are larger. The goal of this article is to focus on the results of meeting the primary lip repair timing in compliance with the surgical treatment protocol used...
at Cleft Center, Bratislava. It also reports on reasons why the scheduled initial lip repairs were delayed.

Methods

This work analyses retrospectively the patients treated at the Cleft Center, Bratislava. In a period of 3 years (2006–2008), 45 initial lip repairs among all cleft operations were performed (average 15 per year). These 45 patients were presented with diagnoses as follows: unilateral CL (23 patients), unilateral CLP (15 patients), bilateral CLP (7 patients). 15 patients were females, 30 patients were males. The object of the analysis was the “day of surgery after birth”. The defined time period was 90th–180th day (3–6 months) for the initial lip surgery according to the surgical protocol. Histories of patients who had undergone surgery before the 90th or after the 180th day were examined.

Results

All patients (CL, unilateral CLP, bilateral CLP) underwent the initial lip surgery. 40 patients (89 %) underwent primary lip surgery in the defined time period of 3–6 months in compliance with the surgical treatment protocol. 5 patients (11 %) underwent their primary lip surgery at a later age than 6 months only due to pediatric reasons (Fig. 1) The reasons of surgical delay were recurrent bronchopneumonia (3 patients), recurrent respiratory infections plus prematurity (1 patient) and sideropenic anaemia (1 patient). All 5 patients had lower social status characterized by poor parental compliance. There were no operative and postoperative surgical complications. There were no anesthesiological complications during and after the surgery. There were only serious pediatric reasons for surgery delay. The determined timing of primary lip closure at the age of 3–6 months is considered adequate according to the achieved results. In most of the cases this timing offers reliable conditions to perform early surgery in baby patients.

Discussion

The successful realization of the primary lip repair in the defined time period of 3–6 months is very important for the proper timing of subsequent surgeries as well as for that of consecutive completion of treatment. There is no doubt, that for a surgeon, it is much more convenient to perform surgery at the age of 3–6 months of the baby. At this age, the nose and lip components have had a chance to increase in size along with the patient.

In general, the most common failures of surgery timing have only serious pediatric reasons as prematurity, respiratory infections, bronchopneumonia with respiratory insufficiency, anaemia, coagulopathy, neurological syndromes and spasms. These reasons prolong the diagnosis and hospitalisation, and contraindicate the general anaesthesia.

The fulfillment of the surgical treatment protocol should be the quality indicator in the treatment of cleft patient. However, a minimum number of studies focused on characterizing the fulfillment of the surgical treatment protocol has been performed so far, especially in neonatal repair. On the contrary, there are many studies about the proper surgical treatment schedule discussing the neonatal repair and repair in the 3rd month. Some of them compare the advantages, the disadvantages and the results of both concepts. Goodacre and coworkers (5) reported a study to determine whether the attractiveness and success of surgical outcome differ according to the timing of cleft lip repair. The conclusion of these experiments was that the neonatal repair for
the cleft of lip confers no advantage over that performed at 3 months in terms of perceived attractiveness or success of surgical outcome. The important disadvantage of the time period of 3–6 months is a psychological impact on parents, as described by McHeik and Levard (6). Mothers express their preference to and greater satisfaction with neonatal repair. Another issue to consider when timing the cleft lip repair is hypoxia. Wood (7) reported that the safety of timing relates to the maturity of the respiratory control mechanisms.

There is still another great issue of interest in intrauterine repair of cleft lip. It has been brought about by the experimental findings in fetal surgery where wounds created in the ectoderm of the animal fetus in utero heal clinically and histologically without scar formation. Harling and colleagues (8) emphasize the attractiveness of in utero therapy because it offers the potential of providing a scarless repair, correcting the primary deformity, preventing the secondary deformities, and giving the parents a “normally” appearing child at birth. Each of these potential benefits is particularly important in patients with craniofacial anomalies. The improvements in video-endoscopic technology that allow the surgical manipulation through small uterine ports promise a possibility of prenatal correction of non-life-threatening malformations in the human fetus (feto-endoscopic surgery), which has been demonstrated to be less invasive than the open approach connected with the high risk of fetal loss.

In spite of all ambitions leading to the creation of ideal surgical treatment scheme in patients with cleft lip and palate, it is necessary to keep in mind that in this diagnosis we will never be able to find any universal treatment approach.

References


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