Midline cleft of upper lip: Review and surgical repair

Dear Sir,

This paper describes cases of median cleft of the upper lip and the authors describe a modified method of repair, which incorporates two triangles, one above the white roll and the other below the columella to lengthen the philtrum and placing them in accordance to the anatomic subunits principle in order to get a better aesthetic result.

5 patients with midline cleft of upper lip were treated by the primary author between April 2012 and July of 2013. Midline cleft of the upper lip may present in a wide spectrum with the mildest form being notching of the vermilion to a cleft extending into the nose. Veau recognized three varieties of median cleft lip: Notch, Median cleft extending into the columella, and a defect caused by atrophy of the whole median element. All the 5 patients reported with varying intensity, ranging from mild notching to cleft extending into the nose. A case with cleft extending up to the columella will be described with emphasis on the modified technique of repair.

A 6-month old female patient presented with midline cleft that extended to the columella. The columella was not widened. The nose appeared flat and mild hypertelorism was noted. Intraorally, mild notching was noted of the centre of the alveolus and frenum. History did not reveal any history of cleft lip/palate in the family and no maternal exposure to drugs and alcohol. A summary of all the cases with findings and the repair is summarised in Table 1.

The closure of the cleft lip was done at the age of presentation. All points are marked with pinpoint marking pen and methylene blue (Figure 1a). First the peaks of Cupid’s bow on each side is marked using two points1,2 one below and the other above the white roll. The authors believe marking two points for the white roll aids in exact match without difficulty. Points 3 and 4 are marked on each side of the cleft denoting the future midpoint of Cupid’s bow. Two triangles are planned ‘a’ which is designed below the columella and ‘b’ which is designed just above the white roll. The bases of one individual triangle will be the gain in the length, with equal triangles from each side providing symmetrical lengthening. In order to get symmetrical cupids bow, the measurement of both the triangles has to be exact. The size of these triangles is not fixed and depends upon the age of the patient at repair. Usually in a 6-month old child it is approximately 2 mm. A back cut is planned (a’ and b’) and the dimensions of this is measured in advance. This helps the repair to be accurate. The junction of wet and dry vermilion is marked, as the failure to match this

<table>
<thead>
<tr>
<th>Case</th>
<th>Age</th>
<th>Sex</th>
<th>Lip/nose findings</th>
<th>Intraoral findings</th>
<th>Repair</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18 years</td>
<td>M</td>
<td>Notching of the vermilion. White roll, nose intact</td>
<td>None</td>
<td>Straight line with a vermilion 'Z' plasty.</td>
</tr>
<tr>
<td>2</td>
<td>28 years</td>
<td>M</td>
<td>Cleft extending one third the distance to the base of the nose</td>
<td>None</td>
<td>Straight line repair.</td>
</tr>
<tr>
<td>3</td>
<td>16 years</td>
<td>F</td>
<td>Cleft extending two-thirds the distance to the base of the nose</td>
<td>Notching of the alveolus and labial frenum</td>
<td>Straight line with two triangular flaps</td>
</tr>
<tr>
<td>4</td>
<td>06 months</td>
<td>F</td>
<td>Cleft extending till columella. Nose appeared flat. Columella intact</td>
<td>Notching of the alveolus, frenum.</td>
<td>Straight line with two triangular flaps</td>
</tr>
<tr>
<td>5</td>
<td>5 years</td>
<td>F</td>
<td>Cleft extending into columella. Columella wide with splayed lower lateral cartilages</td>
<td>Notching of the alveolus, frenum, diastema</td>
<td>Straight line with two triangular flaps. Forked flap for columella.</td>
</tr>
</tbody>
</table>
"Red" line results in an un-aesthetic repair. Once the points are confirmed, they are tattooed using methylene blue and 27 G one half inch needle. 1% Lignocaine with 1:20000 epinephrine is injected into the lip, labial sulcus and columella. No.11 blade is used where sharp cut is expected like cutting the triangles and back cut. Also when the incision is carried through the white roll. Remaining incisions are made using No. 15 blade. When the incision is carried down from the white roll towards the "red" line, authors prefer to save all the vermilion, as this is later used to form vermilion tubercle. These appear as triangular vermilion flaps. Once the incision is completed, the muscle is dissected from the mucosa. The authors do not prefer to dissect the muscle from the skin as this may cause distortion of the philtrum. In their opinion, excessive dissection of the muscle has also shown to result in un-aesthetic scar. The muscle, however is released from its abnormal attachment at the nasal spine. This helps to make the vertical orbicularis horizontal. The muscle is then sutured in a ‘Z’ pattern with 4-0 PDS. The skin is closed using absorbable sutures (5-0 Plain Gut or 6-0 Chromic gut). Aesthetically acceptable results are obtained using the above mentioned sutures (Figure 1b). This technique is a modification of traditional Z-plasty used to lengthen the philtrum, which can sometimes cause an unsightly scar. It effectively hides the triangles in anatomic subunits where the scar will be least noticeable. In summary, this technique can be utilized successfully for the management of midline cleft of the upper lip.

Conflicts of interest and sources of funding statement

No external funding, apart from the support of the authors’ institution, was available for this study. Also the authors declare that there are no conflicts of interest in this study.

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References


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