



## Case Report

# Intra operative challenges faced while performing palatoplasty in a case of mild PRS with isolated cleft palate- Importance of diagnosing subtle changes in pre-operative evaluation

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## ABSTRACT

Repairing cleft palate in a non-syndromic child is very challenging, given the size of oral cavity, a Pierre-robinsequence (PRS) makes matters worse on the operating table, as there is an added difficulty of micrognathia and relatively larger tongue. This paper is written with an objective of sharing our difficulties faced while operating in such a child, the technique used to cover the oral layer of soft palate, and to foresee such difficulties in the preoperative period in milder cases of Pierre robin sequence.

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## 1. Introduction

Isolated cleft palate are associated with many congenital abnormalities which includes PRS and their identification and evaluation in the preoperative period is necessary to execute palatoplasty and to have a satisfying post operative outcome.<sup>1</sup> Repair of cleft palate is done with primary objective of realigning the soft palate musculature for normal articulation in speech, to create a uniform barrier between oral and nasal cavity. It also prevents recurrent ear infections once the repair is accomplished.<sup>2</sup> Surgical repair of cleft palate with a wide gap is very challenging, the wider the gap the more are the rates of palatal fistula.<sup>3</sup> Literature review does mention that meticulous repair of cleft palate in child with PRS is necessary but identifying the difficulties in a case of mild PRS from the initiation phase along with detailed intra operative steps in a case of mild PRS are not described.<sup>4,5</sup> We have made an attempt to describe our experience, difficulties faced, with the intra operative modification done in such difficult cases.

## 2. Case History

A 15-month-old child with 9 kg weight with incomplete isolated cleft palate extending onto partial hard palate was assessed at 9 and 12 months of age, in view of milder form of microstomia the surgery was deferred till he was 15 months old. The child had micrognathia, intact high arched hard palate, there were no history of difficulties in breathing upon birth or any history pointing towards symptoms of PRS. Tongue size could not be made out in the preoperative examination. Mouth opening while the child was crying was found to be adequate. Fitness was obtained by both Anesthetist and pediatric department. Child was taken up for surgery. Intubation was uneventful.

Intraoperatively, in the initial stages of surgery, we faced challenges in retracting the tongue with ding man blade and the post pharyngeal wall was not visualized, the tongue was protruding and prolapsing from the sides and the gaps of the tongue retractor of ding man blade.

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**Fig. 1:** Intra operative view of transposed flaps onto soft palate.

The gap in cleft at soft palate was found to be 10mm, became narrow as the cleft extended to hard palate, standard steps of palate repair were followed. Tensionless nasal layer closure of soft palate was achieved. Re-alignment of abnormal soft palate muscle were achieved in a tensionless manner. Challenges were faced at closure of oral layer of soft palate, hence two-flap oral muco periosteal flaps were harvested and transverse closures of the harvested flaps were transposed onto the oral layer of soft palate. A tension less closure was achieved, we could not visualize and assess the gap between repaired uvula and post pharyngeal wall, as the tongue occupied the whole space. On 2 months of follow up there was no palatal fistula, persistent bifid uvula was noticed and the gap between the posterior pharyngeal wall and soft palate had decreased.

### 3. Discussion

Repair of cleft palate is very challenging and with PRS it becomes more difficult.<sup>5</sup>

Patients with PRS have micrognathia, glossoptosis and isolated cleft palate. Grading of PRS has been mentioned and milder form of PRS may be deceptive, posing a challenge later in the intra operative period.<sup>6</sup> Pre-operative work up of non-syndromic cleft palate is straight forward, but the same is not true in syndromic cleft palate, especially if there are no significant history suggestive of PRS. In every case of isolated cleft palate, a high degree of suspicion of PRS combined with a detailed examination of the mandible, oral cavity and tongue is very much necessary, as this will help the surgeon to plan technical, operative and instrument modifications required in the intra operative period. Predictors of post-operative complication in the practice of anesthesia in PRS infants have been very well described<sup>7</sup>, but the same predictors of operative difficulty in PRS with grading have not been very well documented in plastic surgical practice and it is necessary to do the same.

Cleft palate repair in normal children have been described with various techniques in detail, but to the best of our literature search we could not find any detailed intra operative difficulties faced and the solutions to overcome these challenges in palatal repair in children with PRS.

We enumerate our challenges in a step-by-step method.

#### 3.1. Challenges

1. Challenge: - Retracting the tongue with Dingman tongue blade was not adequate due to small size of mouth and relatively large tongue.
2. Challenge: -As it is important to re position the soft palate posteriorly by push back technique, we could not assess the gap between uvula and post pharyngeal wall (PPW) after the repair.
3. Challenge: - Difficulty in repairing the bifid uvula, due to inadequate visualization of uvula, due to relatively large tongue.
4. Challenge: - Significant tension while suturing oral layer of soft palate.

#### 3.2. Solutions

1. To Challenge: Two small Langenbeck retractors were used to retract the prolapsed tongue.
2. To Challenge: we could not find any solution to this challenge intra operative. The assessment to know the push-back achieved have to be done in the post operative follow up by Naso endoscopy.
3. To Challenge: Suturing was done with great difficulty and consumed a long time. However, we noticed a bifid uvula in the post operative period due to dehiscence of sutures, possibility due to failure to take vertical mattress sutures.
4. To Challenge: Two muco periosteal flaps were raised and transposed onto the oral layer of soft palate defect and a tensionless closure of oral layer of soft palate was achieved Figure 1. Literature review quotes total soft palate reconstruction being done with flaps harvested from hard palate.<sup>8</sup> Here we have followed the same technique of hard palatal flaps being used to close the oral layer of soft palate.

Pre-operative assessment: - We enumerate the following steps to be undertaken in the pre operative period.

1. To assess the mouth opening, when the child is crying, subsequently if possible to look and grade for macroglossia if any,
2. To have a high degree of suspicion when dealing with isolated cleft palate and to preferably have a backup plan for palatoplasty.
3. A pre operative assessment under GA would definitely be worthwhile in such subtle cases of PRS.

#### 4. Conclusions

We conclude that a more careful preoperative examination of oral cavity, and work up with meticulous examination to note the subtle changes in mandible, tongue and oral cavity size in a case of isolated cleft palate irrespective of syndromic or non-syndromic are important to get a successful outcome and to be ready to take on the intra operative period smoothly, especially in cases of isolated cleft palate.

A grading of PRS with a surgical perspective is required as we continue to treat such infants.

#### 5. Source of Funding

None.

#### 6. Conflict of Interest

None.

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