ROLE OF FIBRIN SEALANT IN PREVENTION OF HANGING PALATE
– OUR EXPERIENCE

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Abstract
Hanging palate is one of the rare complications of cleft palate surgery, where the sutured palatal mucoperiosteal flaps dehisced from the sutured anterior alveolar margin. Though secondary suturing is one of the options to treat this complication, secondary surgery which increases the morbidity should be prevented. Conventionally obturator placement following surgery has been described. Here we are sharing our idea of using fibrin sealant for preventing the complication of hanging palate.

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INTRODUCTION
India is one of the most populous country in the world, having approximately 25 million births per year. Incidence of cleft palate and cleft lip with palate ranges between 1-1.5 per 1000 live births in India.[1,2] Various surgical techniques have been described for cleft palate repair.[3-9] These include techniques for closing hard palate, soft palate and protocol based
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Role of fibrin sealant in prevention of hanging palate

Optimal timing for undergoing cleft palate surgery is considered between 6-12 months. Complications of cleft palate surgery include perioperative bleeding, fistula, wound dehiscence, infection, flap necrosis, hanging palate and other late complications. “Hanging palate” is the term coined by Dr. Karoon Agrawal caused by the anterior wound dehiscence resulting in the detachment of mucoperiosteal flap anteriorly with intact attachment posteriorly. This may result from infection, seroma or hematoma collection in the dead space, poor surgical techniques. This may result in large raw area and oronasal fistula.

Secondary suturing may done for treating this complication which causes additional morbidity to the child. We are sharing our idea of applying fibrin sealant in the dead space between oral and nasal layers of palatal mucoperiosteal flaps to prevent this complication.

METHODOLOGY:

This study was conducted in the Department of Plastic Surgery, Jawaharlal Institute of Postgraduate Medical Education & Research (JIPMER), Pondicherry during the period between November 2014 and July 2015. Prospectively fifteen consecutive type II and III cleft (Nagpur classification) patients of all age group were included in the study who underwent Bardach two flap palatoplasty. After closing the nasal layer (with or without vomerine flaps) oral mucoperiosteal layers sutured in midline and anteriorly to the alveolar region, about 1 ml of freshly prepared fibrin sealant injected into the dead space laterally through gap between mucoperiosteal layer and bony palatal shelf as shown in Figure-1. Followed by compression was given for five minutes and the remaining lateral raw areas sutured. Patients were admitted post operatively for seven days and followed up. Liquid diet was started on the day of surgery. Post operatively antibiotic cover was given for three days. All the patient’s wounds were healed completely. There was no evidence of infection.

Figure 1: Fibrin sealant injected into the dead space laterally through gap between mucoperiosteal layer and bony palatal shelf
DISCUSSION:

Hanging palate can be prevented by avoiding or obliterating the dead space under the mucoperiosteal flap by good haemostasis, and good approximation of the mucoperiosteal flap with the sutured nasal mucosa and by the prevention of infection.\textsuperscript{[15]} Fibrin sealant is a complex plasma-derived product which is increasingly used as a biodegradable tissue adhesive or sealant to stop or control bleeding or provide air and fluid tightness in many surgical situations.\textsuperscript{[16]} Bergel in 1909 first used the fibrinogen and fibrin as the haemostatic agent.

Currently available fibrin sealants are based on a two-component mixture, comprised of a fibrinogen and a thrombin concentrate produced from human plasma. The fibrinogen and thrombin components are usually freeze-dried. They should be solubilized, prior to use, with solutions of aprotinin(fibrinogen) and calcium chloride(thrombin). The mixing of the two components, carried out in the presence of ionized calcium, produces the gradual polymerization of fibrinogen to fibrin which in combination with platelets cause clots and achieves hemostasis.\textsuperscript{[16]} The two components fibrin sealant usually applied simultaneously with dual syringe system as shown in Fig- 2.

**Figure 2:** Components of fibrin sealant applied simultaneously with dual syringe system

It has been used for numerous purposes in surgical repairs: tissue adhesion, haemostatic agent, fluid barrier and space-filling growth matrix etc.\textsuperscript{[17,18,20]} Fibrin sealant is used in almost all surgical specialities.\textsuperscript{[16]} All the above-mentioned properties are in favour of using fibrin sealant for obliterating the dead space between the mucoperiosteal oral and nasal layer and possibly prevents the separation of oral mucoperiosteal layer from the nasal layer and bony palatal shelves. We found in all 15 patients wound healed completely without any complications. Veena Singh et al have described similar experience for the prevention of hanging palate.\textsuperscript{[19]}
CONCLUSION

Though hanging palate is a relatively rare complication of cleft palate surgery, treatment will be cumbersome and may cause added morbidity if the complication occurs. Here we have shared our idea and experience of using fibrin sealant for possible prevention of hanging palate. As the sample size in this study is small further large randomised control study is required to validate the same.

Conflict of Interest Statement-
There is no conflict of interest.

REFERENCES: