COMBINATION THERAPY USING GLOSSOPEXY AND RADIOFREQUENCY THERAPY IN PIERRE ROBIN SEQUENCE

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Abstract

Pierre Robin sequence (PRS) describes the clinical triad of micro- and/or retrognathia, glossoptosis and cleft soft palate. Glossoptosis has been demonstrated to be an effective treatment in selected cases of obstruction caused by glossoptosis (generally 6 to 10 months of glossoptopy period). If radiofrequency therapy (RF) can reduce tongue volume in PRS, it will be helpful in early releasing of the glossoptopy. Two-day-old patient showed a PRS triad. Intermittent cyanosis, respiratory difficulty and feeding problems were also observed. The respiration was not improved and prolonged intubation increased the possibility of respiratory complications like pneumonia. The surgical intervention- glossoptopy and RF was done 20 days after birth. We applied RF combined with conventional glossoptopy and could get successful results while reducing the overall treatment time to 6 weeks. The follow-up until 12 months after birth was uneventful. Considering that early recovery is highly beneficial to PRS patients by reducing risks associated with glossoptopy and low energy RF application is very simple and low risk to patient, our combination therapy should be considered for the treatment of airway problem related to PRS.

Key words: Pierre Robin sequence, Glossoptopy, Radiofrequency therapy, Combination therapy

I. Introduction

Pierre Robin sequence (PRS) describes the clinical triad of micro- and/or retrognathia, glossoptosis and cleft soft palate. Glossoptosis has been demonstrated to be an effective treatment in selected cases of obstruction caused by glossoptosis. The exact timing of tongue release has not been defined, but generally 6 to 10 months of glossoptopy period has been recommended. During glossoptopy, tongue movement is restricted. Therefore, subsequent speech and feeding problems may be raised.

The radiofrequency therapy (RF) has been applied to reduce the volume and the power of the skeletal muscles. RF has been used for reducing tongue volume in the sleep apnea. The complications related to RF have been minimal. If RF can reduce tongue volume in PRS, it will be helpful in early releasing of the glossoptopy. We present a new clinical trial using glossoptopy and RF in PRS. Using this technique, we could reduce the duration of glossoptopy.

II. Case report

Two-day-old patient showed a PRS triad: micrognathia, glossoptosis, and cleft palate. Intermittent cyanosis, respiratory difficulty and feeding problems were also observed. The patient received the endotracheal intubation and was observed for 18 days. The respiration was not improved and prolonged intubation increased the possibility of respiratory complications like pneumonia. Therefore, the surgical intervention was unavoidable in this case. The surgical intervention- glossoptopy (Fig 1A) and RF was done 20 days after birth (Fig 1B, 1C). After perform-
ing glossopey as previously described. RF was applied to the tongue base and the genioglossus muscle (Fig 1B, 1C). The radiofrequency generator was NeuroTherm™JK4A (RDG Medical, Croydon, UK). The diameter of the electrode was 1.1 mm and it transmitted alternating current. The maximum temperature at the tip of the electrode was set at 70°C. The duration of each application of current was 120 second.

The wire suture for glossopey was spontaneously released 4 weeks after the treatment. The patient could breathe in lateral position, but the oxygen saturation was dropped in supine position. The glossopey was applied again (Fig. 2A). Two weeks later, the wire suture was removed and the oxygen saturation of the patient was not influenced by the patient’s head position. The airway was also successfully maintained without wire fixation (Fig. 2B). Ten months after birth, the patient readmitted for the treatment of pneumonia. The airway was completely maintained at 10 months after birth (Fig. 2C). After then, the follow-up until 12 months after birth was uneventful.

![Operation views (20 days after birth). The surgical intervention- glossopey was done A. The RF was applied to the tongue base B and the genioglossus muscle C.](image1.png)

![Skull lateral views. The tongue was fixed to lip with wire suture at 4 weeks after RF A. The airway was maintained without wire fixation at 6 weeks after RF B. The patient showed nearly normal airway at 10 months after birth C. Note the distance between the tongue and the pharyngeal wall (arrow).](image2.png)