

# **Oblique lip-alveolar banding in patients with cleft lip and palate**

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## **Abstract**

We report an oblique lip-alveolar band, a rare banding of soft tissue that involves the lip and alveolus, which we have found in five patients with cleft lip and palate (0.2%), compared with an incidence of the Simonartz lip-lip band of 5.7%). To our knowledge this has not been reported previously. In two patients the bands affected the cleft lip and alveolus bilaterally, with or without the palatal cleft, and in three the bands were unilateral cleft lip and alveolus with or without the palatal cleft.

Keywords: Lip-alveolar band; Simonartz' band, cleft lip and palate

## Introduction

The Simonartz' band is a band of soft tissue that bridges the medial and lateral aspect of the cleft lip.<sup>1</sup> Semb and Shaw describes it as a soft tissue connection between the medial and lateral margins of the cleft lip, nostril or between the divided alveolar process. There is often disparity between an incomplete cleft, which is fused to the nasal floor, and a Simonartz' band, which is a loose soft tissue bridge between the lips.<sup>2</sup>

## Incidence

In 3942 recorded patients referred to the cleft lip and palate clinic, 2051 (52.0%) presented with a cleft lip and alveolus, or palate, or both. Five of these (0.24%) were recorded as having a lip-to-alveolus band, two of whom had bilateral cleft lip alveolus (Fig. 1) with unilateral lip-alveolar banding, and three of whom had unilateral cleft lip and cleft alveolus cases (Fig2.). In comparison, the incidence of the lip-to-lip (Simonartz') band was 6.0% (n = 123) and of the alveolus-to-alveolus band 0.24% (n = 5).



**Figure1.** Bilateral cleft lip, alveolus and palate with unilateral band (left)



**Figure 2.** Unilateral lip alveolar cleft (right).

## Discussion

The history behind the Simonartz' band is scant and we could find only a few published papers. The first to refer to it was Dr Gustav Simon (1823–1876), a German surgeon who was renowned for his skill in the management of urogenital fistulas.<sup>3</sup>

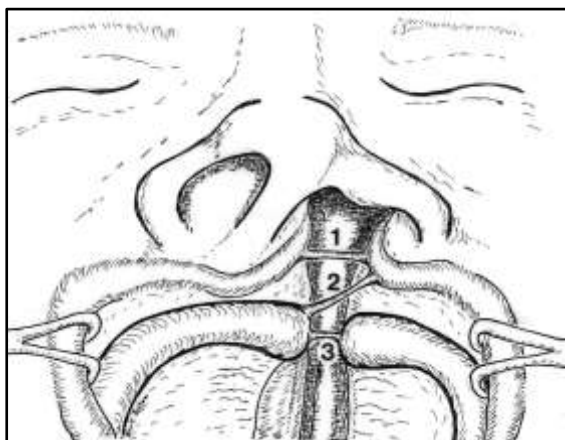
The embryology and development of the face is well understood.<sup>3,4</sup> Despite this, the mechanism of the formation of a Simonartz band remains unknown. There are, however, a number of proposed pathogenetic mechanisms. According to Semb and Shaw the most plausible explanation is a synchronous cellular proliferation between the medial and lateral nasal processes, inadequate approximation of these processes, or impaired apoptosis of the cells within the epithelial surfaces.<sup>2</sup>

Veau<sup>5,6</sup> and Veau and Politzer<sup>7</sup> postulated that the cause of a soft tissue bridge was due to inadequate mesodermal penetration into the epithelial wall that separates the maxillary and frontonasal processes, followed by incomplete rupturing of the walls. Maurer suggested that the band resulted from partial healing of the cleft after breakdown.<sup>8</sup> Töndury implicated the failure of development of the epithelial wall as the cause of formation of the

band, which was based on the examination of a 64mm foetus with a bilateral cleft lip and a unilateral band.<sup>9</sup>

According to Sulik the band originates from a supplementary growth centre within the maxillary process, and this was identified on scanning electron micrographs of a mouse embryo.<sup>4</sup> The area, which is known as the maxillary prime, is a distinct area that fuses independently of the rest of the facial structure, which results in formation of a band even if there is non-fusion between the frontonasal and maxillary processes.<sup>4</sup> The presence of banding may result in reduced segmental displacement of the lip alveolar complex, which would translate into more favourable morphology with a reduction in the extent of the surgical procedure.<sup>2</sup>

A different type of banding, which involves the medial and lateral alveolar components, has been described.<sup>10</sup> This paper introduces another variation of lip banding, as a third type (Fig. 3), which goes from the lip to the alveolar component, as a lip-to-alveolus band. Like the previously-described bands, this new oblique lip-alveolar band also presents as a soft tissue mucosal bridge, which limits lateral displacement of the attached lip component. This



**Figure 3.** Drawing to present the three different types of banding: 1. lip-to-lip (Simonartz), 2. lip-to-alveolus, 3. alveolus-to-alveolus.

variation of mucosal soft tissue band, with variations in involved structures, places a greater challenge for adopting suitable developmental theory.

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