



## Importance of various skin sutures in cheiloplasty of cleft lip

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**Abstract** (J Korean Assoc Oral Maxillofac Surg 2019;45:374-376)

Last week, after our receiving online journal regarding *Journal of the Korean Association of Oral and Maxillofacial Surgeons*, we found a recently published original article by Alawode et al., entitled “A comparative study of immediate wound healing complications following cleft lip repair using either absorbable or non-absorbable skin sutures”. Although this clinical article was well written and provided a great deal of information regarding the suture materials in the cleft lip repair, I would like to add a few additional comments based on the importance of skin suture during cheiloplasties in the primary cleft lip or secondary revision patients with representative figures.

**Key words:** Cheiloplasty, Cleft lip, Skin suture material, Orbicularis oris muscle

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In Alawode et al.’s article<sup>1</sup>, their conclusion was that no statistically significant differences were found in the incidences of wound dehiscence and surgical site wound infection following the use of either Vicryl or Nylon for skin closure during cleft lip repair. However, more cases of tissue reactivity were recorded in the Vicryl group than in the Nylon group on postoperative days 7. Particular attention must be paid to detect the occurrence of wound healing complications, most especially tissue reactivity, whenever a Vicryl suture is used for skin closure in cleft lip repair.

This topic has been reviewed in many previous articles, we can find lots of similar articles through PubMed website such as [https://www.ncbi.nlm.nih.gov/pubmed/?linkname=pubmed\\_pubmed&from\\_uid=28299270](https://www.ncbi.nlm.nih.gov/pubmed/?linkname=pubmed_pubmed&from_uid=28299270). Most of previous valuable articles<sup>2-4</sup>, including Alawode et al.’s article<sup>1</sup> could be categorized mainly as 1) absorbable skin suture materials for cleft child due to no stitch out procedure, 2) comparisons of different types of absorbable sutures, 3) evaluation of skin ad-

hesive such as cyanoacrylate, and 4) no skin suture based on accurate muscle and subcutaneous adaptations. Based on this previous academic information and my experiences, several main commentaries regarding the importance of skin sutures in cleft lip repair could be considered.

First, what is the important meaning of this article for the readers of maxillofacial specialty or dental surgeons? As a common sense in our maxillofacial surgical fields, absorbable suture materials have been used for subcutaneous tissue approximation mainly, and for the special care patients requiring no suture material removals such as baby patients or uncontrolled handicapped patients. Thus, if the cleft patient could be managed comfortably during suture materials removal, non-absorbable suture should be recommended for its clean postoperative lip skin wound. But, if the patient could not be managed or expected on sutures removal, absorbable suture might be recommended in spite of not perfect skin.

Second, most cleft surgeons know that the postoperative wound healing complications are dependent not on the skin suture materials, but on the accurateness and firmed repositioning of the inner deformed musculatures including external or internal orbicularis oris muscle (OOM). Fig. 1 is one of representative clinical figure which showed the importance of inner OOM repositioning with non-absorbable suture materials, regardless of Millard rotational advancement or Tenison-Randall triangular flap techniques. But, unfortunately, there are no information regarding any muscular key sutures nor any subcutaneous sutures in this clinical skin suture ma-

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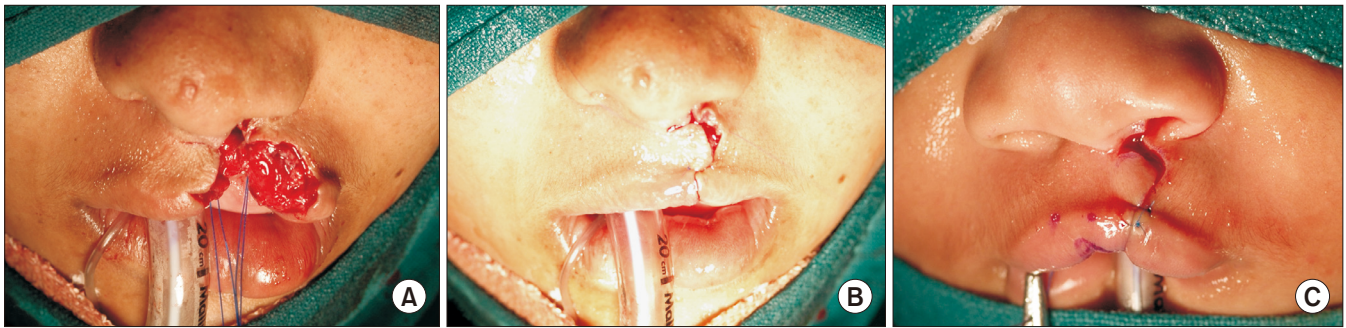
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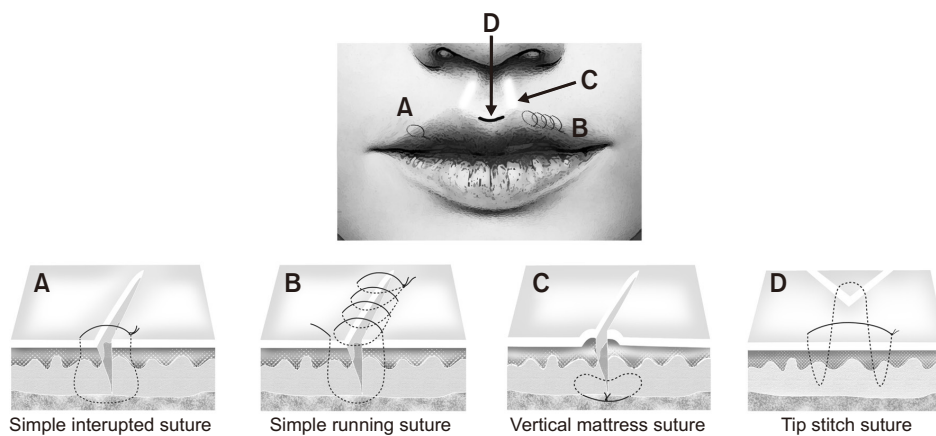
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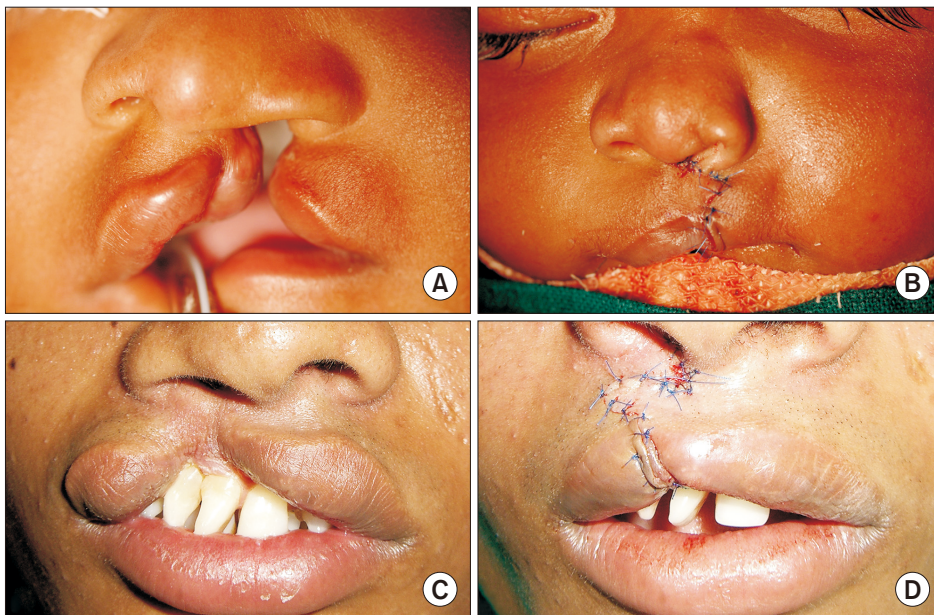
**Fig. 1.** Cheiloplasty procedures showing the inner anchoring suture with non-resorbable suture materials for the muscular reorientations (A), skin flap approximation state with only muscular and subcutaneous suture (B), and muscular repositioning status in another cleft lip patient (C).

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**Fig. 2.** Commonly used suture techniques during cheiloplasty in the upper lip according to each anatomical skin landmark showing simple interrupted or running suture on the vermilion border (A, B), vertical mattress everted suture on the philtrum (C), and tip switch suture on the cupid bow (D).

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**Fig. 3.** Different cleft lip defect size and suture numbers between cleft lip baby (A, B) and unoperated cleft lip adult (C, D).

materials comparison study. As we know about the lip anatomy regarding each different layer from skin to the deeper OOM, every lip skin is fixed in place by inside muscle layer. Since

lip repairs are generally approached in a layered fashion, absorbable suture may be used for both muscle and dermal repairs.

Third, the clinical measurement including tissue reactivity, wound dehiscence, and local wound infection, looks not appropriate for the cheiloplasty procedures, especially in baby patients. Authors referenced the previous Gabrielli et al's article<sup>5</sup>, which have informed that postoperative wound complications (i.e., tissue reactivity, infection rate, and wound dehiscence) were investigated in the 1,000 plastic surgery outpatients for checking different suture materials, individual patient characteristics, surgeon skill, and wound site and length. Their simple plastic closing procedures include 3 cm or less in length in 845 cases, all wounds were evaluated by medical staff at 3, 7, and 14 after surgery without any evident based reason. Authors also followed the same three outcomes criteria, 1) tissue integrity defined as an erythema at the suture site that extended more than 3 mm from the surgical wound, 2) wound dehiscence defined as spontaneous suture disruptions not the result of traumas, and 3) local wound infection diagnosed when wounds contained purulent material and showed other clinical signs of infection e.g., local tenderness, warmth, erythema, etc., with or without a positive bacterial culture result. These criteria were adapted without any modification to cheiloplasty patients in Alawode et al's article<sup>1</sup>.

Fourth, in each individual checking criteria, authors apply just 'yes' or 'no' depending on whether each criterion present or absent, respectively. And these clinical table data was compared using chi-square and Fisher's exact tests for the statistical significance. Unfortunately, there are no quantifiable data, nor any divided severity data such as mild, moderate, or severe. Even although the immediate wound healing evaluations with simple clinical evaluations are acceptable in several previous articles<sup>2-4,6</sup>, it could be recommended for using other detailed evaluation standards including follow-up time, patient's photos evaluated by different staffs, postoperative healing status regarding wound infection or hypertrophic scar formation, and so on<sup>4</sup>.

Finally, there is no information regarding skin suture technique. Different types of suture technique could be used according to cleft width, dermal thickness, and advancement flap amounts. According to each anatomical lip skin landmark, simple interrupted or running suture is useful on the vermilion border, vertical mattress everted suture on the philtrum, and tip switch suture on the cupid bow.(Fig. 2) Accurate approximation of the vermilion border, philtrum, and philtral ridge is very important for its postoperative different flat or elevated contour. In addition, cleft child under 1 year could not be considered with unoperated cleft adult or second

lip revision patient due to different suture material size, stitch numbers, stitch distances, and so on.(Fig. 3)

From above several commentaries, I could suggest that inner muscular reorientation is the most important in the cheiloplasty of cleft lip patients for the minimizing postoperative complications and the esthetic outcomes, regardless of skin suture materials.

## Author's Contributions

S.M.K. designed and wrote the entire article.

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## Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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