Brief Report

Utilization of Nonabsorbable (Polyamide Black) Buried Subcutaneous Suture Material in Closure of Elliptical Excision in Various Indications for Better Aesthetic Outcome

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Abstract

The aim of this report was to study the effectiveness of nonabsorbable (polyamide black) subcutaneous buried suture (6-0) in elliptical excision of various indications for better outcome of the scar. Clinical data of 155 patients, who underwent nonabsorbable buried subcutaneous closure in elliptical excision for different indications, were collected randomly and analyzed retrospectively. By using a modified Vancouver Scar Scale, which includes an assessment of pliability, the height of scar, vascularity, and pigmentation, all postoperative scars were classified into five categories: excellent, good, moderate, hypertrophic scar, or keloid. A total of 155 patients of elliptical excision with different indications were included in the study. In this study, the male-to-female ratio was 1:2, and patients in the age-group between 10 and 70 years were involved. Of 155 patients, 72% of patients had excellent cosmetic outcome (0 score), 21.29% had good cosmetic outcome (1 score), and 2.58% had a moderate cosmetic outcome (2 score) without any hypertrophic scar or keloid by using a modified Vancouver Scar Scale. No complaints were reported during the study. Scar closure by nonabsorbable buried subcutaneous suture will reduce cutaneous tension, so there will be a better approximation of wound edges and thus better outcome of the scar.

Keywords: Better cosmetic outcome, elliptical excision, nonabsorbable subcutaneous closure

Brief Report

Once a scar is formed it may last forever; it cannot be removed totally, but it can be modified to look better both functionally and aesthetically with combination of therapeutic modalities. People with abnormal skin scarring may face physical, psychological, aesthetic, and social consequences that may be associated with substantial emotional and financial costs.[1-6]

Clinical data from 155 patients of elliptical excision with different indications were collected randomly and analyzed retrospectively. This study was conducted among patients attending dermatology outpatient department from April 2016 to January 2019. Patients in the age-group between 10 and 70 years were involved regardless of gender bias. Notably, history, general physical examination, thorough dermatological survey, and preoperative investigations (complete blood count, urine routine microscopy, random blood sugar, human immunodeficiency virus [HIV], and Hepatitis B surface antigen [HbsAg]) were performed. Statistical data were presented as percentage.

Before the beginning of the study, patient's consent and photographs were taken. Photographs were captured at the following visits: First visit, seventh day of the procedure after suture removal, and at the end of 1 month and 3 months for the assessment of scar. At the end of third month, scar assessment was carried out by using a modified Vancouver Scar Scale.

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Modified Vancouver Scar Scale

1. Pigmentation:
   0 = normal
   1 = hypopigmentation
   2 = mixed pigmentation
   3 = hyperpigmentation
2. Vascularity:
   0 = normal
   1 = pink
   2 = red
   3 = purple
3. Pliability:
   0 = normal
   1 = supple—flexible with minimal resistance
   2 = yielding—giving way to pressure
   3 = firm—inflexible, not easily moved, resistant to manual pressure
   4 = banding—ropelike tissue that blanches with extension of scar
   5 = contracture—permanent shortening of scar producing deformity or distortion
4. Height:
   0 = normal–flat
   1 = >0–1 mm
   2 = >1–2 mm
   3 = >2–4 mm
   4 = >4–mm
   Total score = 15

Figures 1–5 show pretreatment and posttreatment view of various dermatological indications. Total data of 163 patients were collected, who underwent elliptical excision for various indications, among which eight patients did not come for follow-up visit after 7 days owing to their residence in other city, and suture removal was carried out in their hometown. Male-to-female ratio was 1:2 in our study. Table 1 shows the distribution of cases as per the modified Vancouver Scar Scale scoring system at the end of third month.

Table 2 shows the number of participants as per the modified Vancouver Scar Scale scoring system at the end of third month for various dermatological indications. In our study, we found excellent improvement (0 scales) in the modified Vancouver Scar Scale in most of the

Table 1: Distribution of cases as per the modified Vancouver Scar Scale scoring system after 3 months

Total score of 15	*N* (%)
0, excellent	112 (72)
1, good	33 (21.29)
2, moderate	4 (2.58)
3, minimum	6 (3.87)

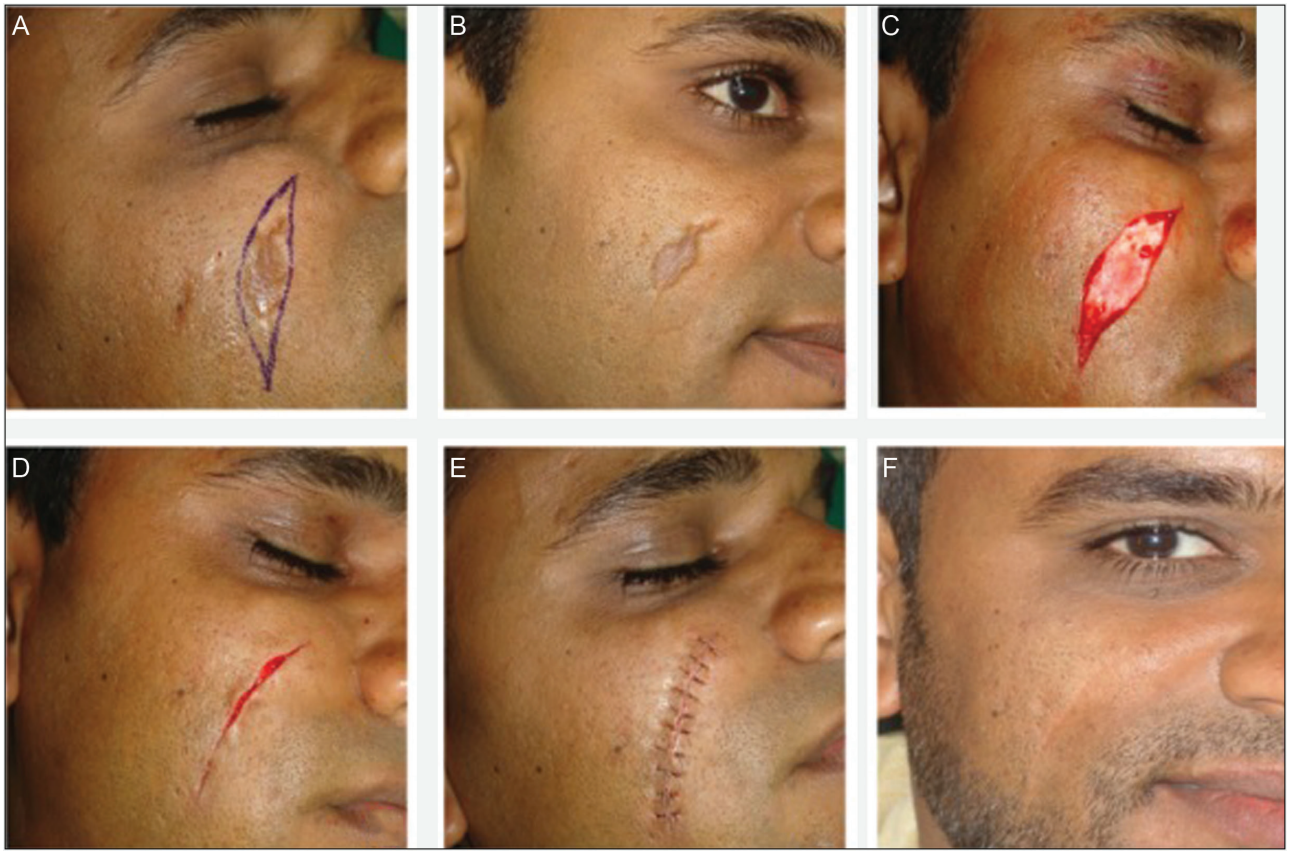

Figure 1: (A) Pretreatment view of posttraumatic scar. (B) Planned direction of excision. (C) Excision of scar. (D) Subcutaneous nonabsorbable buried suture. (E) Cutaneous vertical mattress suture. (F) Cosmetic improvement in after surgical view

indications for elliptical excision with using nonabsorbable buried sutures. Approximately, 82.60% of patients with compound nevus got 0 scale, that is, almost invisible scar at the end of 3 months. Approximately, 56.86% of posttraumatic scar patients got 0 score, which is quiet appreciable, likewise 88.88% of patients with junctional nevus, 50% of tattoo removal patients, 70% of patients with congenital melanocytic nevus, 100% of patients with seborrheic keratosis, 66.66% of patients with accessory tragus, and 100% of patients with keratoacanthoma got 0 score in this study. Apart from these, no complaint was reported during the study period.

For better outcome of the scar, it is important to reduce tension over cutaneous stitches, which are achieved by subcutaneous wound closure by nonabsorbable (polyamide black) buried interrupted suture (6-0), and cutaneous closure by nonabsorbable suture in vertical mattress pattern,

Table 2: Number of participants as per the modified Vancouver Scar Scale scoring system at the end of third month for various dermatological indications

	Indication	Total (*N* = 155)	Score 0 (excellent) *N* (%)	Score 1 (good) *N* (%)	Score 2 (moderate) *N* (%)	Score 3 (minimum) *N* (%)	Score 4–15 (poor) *N* (%)
1	Compound nevus	69	57 (82.60)	11 (16.94)	0	1 (1.44)	--
2	Posttraumatic scar	51	29 (56.86)	15 (29.41)	3 (5.88)	4 (7.84)	--
3	Junctional nevus	9	8 (88.88)	1 (11.11)	--	--	--
4	Tattoo removal	6	3 (50)	3 (50)	--	--	--
5	Basal cell carcinoma	1	--	1 (100)	--	--	--
6	CMN	10	7 (70)	1 (10)	1 (10)	1 (10)	--
7	Seborrheic keratosis	3	3 (100)	--	--	--	--
8	Accessory tragus	3	2 (66.66)	1 (33.33)	--	--	--
9	Keratoacanthoma	3	3 (100)	--	--	--	--

CMN = congenital melanocytic nevus

Figure 2: (A) Post chicken pox scar. (B) Vertical mattress suture after excision. (C) Suture removal on seventh day. (D) After surgical view

Figure 3: (A) Congenital melanocytic nevus, pretreatment. (B) After surgical appearance

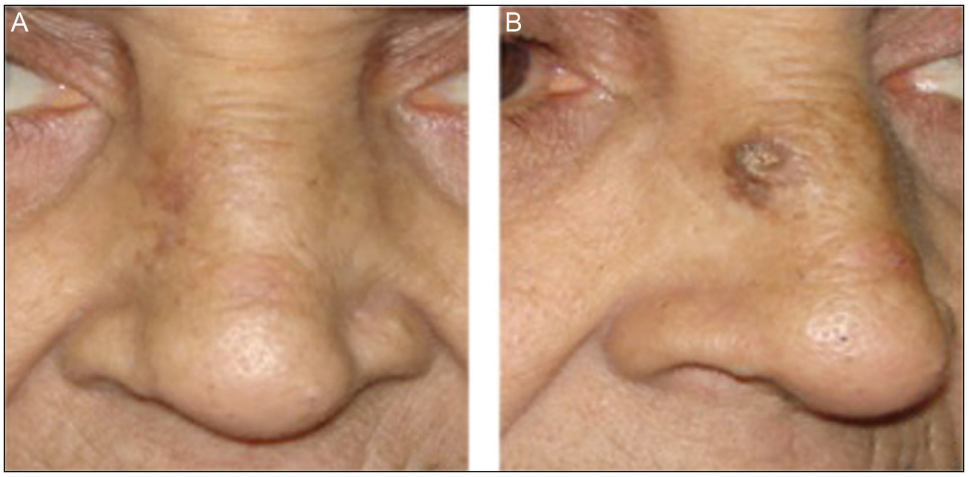

Figure 4: (A) Before treatment, keratoacanthoma. (B) After surgery

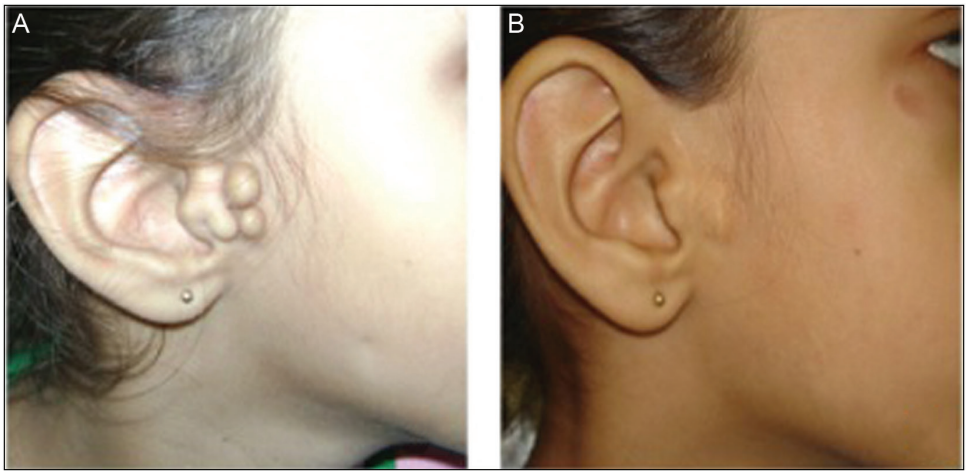

Figure 5: (A) Accessory tragus before treatment (B) After surgical cosmesis

which needs to be removed on seventh day. Nonabsorbable suture material is preferable, because it is easier to tie, it is unlikely to break prematurely, and it elicits a minimal inflammatory response. Subcutaneous buried sutures do not require its removal and, it remains as it is at its location for a lifetime.[7-13] In a recent study with rat models, Tomida *et al.*[14] postulated that the subcutaneous introduction of polypropylene does not produce pronounced foreign body reactions. Proper approximation of wound edges is crucial to reduce wound gap and for better cosmetic appearance

of the scar. Complications such as hematoma, dehiscence, wound gap, unaesthetic scar, and indentation mark and dog-ear formation can be prevented by subcutaneous closure.

In conclusion, utilization of absorbable suture material in subcutaneous layer for strengthening the tissue can give tensile strength for 10–12 days only, and gradually it gives tension over healed tissue and it gives appearance of railroad track pattern scar, whereas, utilization of nonabsorbable buried suture subcutaneously gives strength to the subcutaneous tissue and it lasts for a lifetime and avoids widening of tissue and ultimately avoids the appearance of railroad track scar or visible fibrotic scar. As expected, nonabsorbable subcutaneous closure in elliptical excision is carried out to reduce skin tension and for better outcome of scar.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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