SHORT COMMUNICATION

Comfort-based Pain Management for Intralesional Treatment of Pediatric Post-otoplasty Keloids

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Otoplasty is frequently performed in children to correct prominent ears and reduce the risk of psychological distress related to bullying and reduced self-esteem. Keloid formation in surgical scars is a documented complication following paediatric otoplasty (1). Intralesional treatment of keloid scars can be painful and may therefore pose a challenge to carry out in paediatric patients. Focusing on comfort rather than pain when communicating with patients undergoing injection procedures may improve their experience of the procedure and reduce perceived pain (2). The use of intralesional triamcinolone acetonide (TAC) combined with 5-fluorouracil (5-FU) is considered safe and effective for the treatment of keloid scars and has been found to be more effective than intralesional TAC alone (3).

CASE REPORT

We present the case of a 12-year-old male patient who underwent otoplasty for protruding ears that were causing physical discomfort and negatively affecting his self-esteem (**Fig. 1**). The surgical procedure was completed without any perioperative complications. At the 3-month postoperative follow-up, auricular positioning was deemed satisfactory; however, mild hypertrophy of the surgical scars was noted. Subsequently, the patient developed bilateral keloid scars along the postauricular incision lines (**Fig. 2**). In addition to aesthetic concerns, the keloids were painful, particularly during physical activities and sports. The patient also reported pruritus, leading to intermittent excoriations and bleeding.

Initial management included silicone gel sheeting for 4 months, without any noticeable improvement. This was followed by the application of pressure clips, which were discontinued due to discomfort and perceived social stigma. The patient was then referred to the Department of Dermatology for intralesional therapy.

To avoid triggering nocebo effects, we used a comfort-focused communication strategy, as described by Hansen & Zech (4). The patient was told, "It is very important to me (the clinician) that this procedure is as comfortable as possible for you. When it is over, I will ask you to rate the experience on a comfort scale from 0 to 10, where 10 is the most comfortable thing you can imagine, and 0 is the least comfortable". Words like pain, needle or sting were never mentioned. Healthcare providers present at the consultation aimed to maintain a calm, positive and reassuring body language and facial expressions. The patient was informed that he could pause the procedure at any time, and each injection (3–10 per session) was only given after the question "Are you ready?" and a clear "yes". This approach aimed to reduce anticipatory anxiety, maintain a sense of control

Fig. 1. Pre-operative photos prior to otoplasty.

Fig. 2. Keloid formations bilaterally following otoplasty.

and promote a positive procedural experience. Based on prior clinical experience, the procedure was initially performed without local anaesthesia. Since the patient rated the first session as comfortable and responded positively to the approach, subsequent treatments were similarly carried out without local anaesthesia. The patient reported a comfort level ranging from 6.5 to 10, with an increasing trend over time (**Table I**).

At the initial consultation, test injections of TAC 40 mg/mL and a combined solution of TAC (40 mg/mL) with 5-FU (50 mg/mL) in a 1:9 ratio were administered off-label. The patient tolerated the test injections well. A total of 9 intralesional treatment sessions using the TAC+5 FU combination were administered without local anaesthesia, at a minimum interval of 4 weeks. The cumulative dose of TAC+5 FU was 6.42 mL over a 2-year period.

The treatment course resulted in a substantial reduction in keloid size, with a high degree of patient satisfaction (**Fig. 3**).

Fig. 3. Keloid scars successfully treated with intralesional triamcinolone acetonide combined with 5-fluorouracil solution.

DISCUSSION

In the presented case, we successfully performed intralesional injections in a paediatric patient using a comfort-based treatment approach and a numeric comfort scale. The numeric comfort scale is derived from Katherine Kolcaba's Comfort Theory, which promotes a holistic approach that incorporates psychological and environmental factors to optimize the patient's experience in medical care (5). The comfort scale has been validated and is suggested as an alternative to traditional pain scales (2, 6). A randomized trial comparing women who were asked about comfort rather than pain following caesarean sections demonstrated an overall more positive perception of the procedure and a significant reduction in analgesic use in the comfort group, suggesting a beneficial impact on the patient's pain experience (7). This approach is grounded in the understanding that verbal cues and therapeutic communication can either amplify discomfort (nocebo) or enhance tolerance and safety (placebo-like effects) (4). By verbally framing the intervention around comfort rather than discomfort and emphasizing patient autonomy and reassurance, we aimed to minimize anxiety and support a more positive procedural memory. This aligns with the principles of "essential communication" outlined by Hansen & Zech, where comfort, control and care are key elements in reducing stress-related negative responses (4).

Although considered safe and effective, some adverse effects such as inflammation and ulceration have been described following intralesional 5-FU (3). Furthermore, the safety of intralesional 5-FU in paediatric populations is not yet well described (8). We therefore advocate for an initial test treatment to evaluate tolerability.

The comfort-based communication and therapeutic approach resulted in a successful intralesional treatment series in this paediatric patient with keloid scars. We propose that the Comfort Theory and numeric comfort scale may be valuable tools in a range of dermatological procedures, particularly among paediatric and other vulnerable populations.

Table I. Administered volumes of triamcinolone acetonide combined with 5-fluorouracil and patient's reported level of comfort after each treatment session

Date	Volume of TAC+5 FU (mL)	NRS of comfort
31/5/2023	0.37	6.5
28/6/2023	1.2	7
16/8/2023	0.8	7
29/11/2023	0.9	8
15/5/2024	0.9	7
14/8/2024	0.5	8
27/11/2024	0.7	8
29/1/2025	0.6	10
23/4/2025	0.45	10
Cumulative volume (mL)	6.42	

5-FU:5- fluorouracile; NRS:numeric rating scale; TAC:triamcinolone acetonide.

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Data availability statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

Ethics committee: The authors obtained written consent from the patient and his parents for photographs and medical information to be published in print and online and with the understanding that the information may be publicly available and discoverable via search engines.

The authors have no conflicts of interest to declare.

REFERENCES

1. Naumann A. Otoplasty - techniques, characteristics and risks. GMS Curr Top Otorhinolaryngol Head Neck Surg 2007; 6: Doc04. https://doi.org/https://pmc.ncbi.nlm.nih.gov/articles/PMC3199845/

2. Yildiz GN, Şirin Gök M, Çiftçi B. Development and psychometric validation of the comfort scale for injection. BMC Nurs 2024; 23: 903. https://doi.org/10.1186/s12912-024-02566-9
3. Mavilakandy AK, Vayalapra S, Minty I, Parekh JN, Charles WN, Khajuria A. Comparing combination triamcinolone acetonide and 5-fluorouracil with monotherapy triamcinolone acetonide or 5-fluorouracil in the treatment of hypertrophic scars: A systematic review and meta-analysis. Plast Reconstr Surg 2024; 153: 1318–1330. https://doi.org/10.1097/PRS.0000000000010867
4. Hansen E, Zech N. Nocebo effects and negative suggestions in daily clinical practice – forms, impact and approaches to avoid them. Front Pharmacol 2019; 10: 77. https://doi.org/10.3389/fphar.2019.00077
5. Kolcaba KY. A theory of holistic comfort for nursing. J Adv Nurs 1994; 19: 1178–1184. https://doi.org/10.1111/j.1365-2648.1994.tb01202.x
6. Miu MW, Martin A, Cyna AM. Postoperative pain and comfort scores: Do they correlate? Anaesth Intensive Care 2019; 47: 435–441. https://doi.org/10.1177/0310057X19861985
7. Chooi CSL, White AM, Tan SGM, Dowling K, Cyna AM. Pain vs comfort scores after Caesarean section: A randomized trial. Br J Anaesth 2013; 110: 780–787. https://doi.org/10.1093/bja/aes517
8. Barone S, Bao E, Rothberg S, Palacios JF, Smith IT, Tanna N, et al. Scar management in pediatric patients. Medicina 2025; 61: 553. https://doi.org/10.3390/medicina61040553