

Cosmetology Conference 2019: Surgical adverse events and incidence rate in bidirectional barb suspension thread surgery

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Abstract

Introduction:

Among the methods of surgery for reshaping and redrawing the contour of our ageing face, currently one may go for suture thread materials or other energy-based devices or formal face-lifting surgery. There has been a trending and constant upsurge in the application of thread suspension surgery all over the world. The evolution of barbed suture technologies and their application in the field of plastic surgery has been already here for about three decades. According to surveys Face-lifting comes in the 4th position for most common surgical procedures worldwide. Barb suspension thread can be an alternative option to formal surgery as thread surgery is minimal invasive, office-based procedure, bearing lower risks and less down time. Successful thread usage has been started since 1950s and is widespread later with the introduction of permanent thread system by Sulamanidze in late 90s. Designs that were primarily developed and later enhanced for use in aesthetic facial procedures include free-floating, bidirectional barbed sutures; unidirectional barbed sutures; anchored, bidirectional double-threaded sutures. To summarize, the major thread system in the market currently are barb and smooth suture materials. Further in the barb suture there are two methods, it can be either unidirectional and bidirectional barb system. Theoretically, bidirectional barb thread system is more advantageous as it provides better mechanical advantage by positioning more barb in the suspension and the antagonistic traction between the barbs in two opposite directions. However, the long-term results after the resolution of the physical thread materials is done also rely on the effective bio-stimulation.

Barb suspension surgery is getting popular as a supplementary choice for facial contouring and reshaping. Compared with formal face lifting, barb suspension provides a safer, minimally invasive and office-based surgical procedure. However, barb suspension surgery does have certain risks due to the invasive nature.

Objective: We would like to evaluate the incidence of adverse events after thread suspension surgery. Through this retrospective analysis, we would like to standardize the possible adverse events to facilitate future reporting and prevention strategies.

Methods:

To evaluate the barb methodology we have used Happy Lift™ (Revitalizing) Double Needle threads (or in Europe and

some other countries known as Definisse™ threads). The one used is a range of absorbable, monofilament, suspension-barbed threads of synthetic origin (poly-L-lactic acid and caprolactone, p(LA-CL). The thread ends have two straight sharp needles 100 mm long with a diameter of 0.462-0.488 mm for the thread with the 12 cm barbed section. The thread with the 23 cm barbed section has two 150 mm long needle with the same diameter. The barbs distribution is bidirectional and convergent. The sutures interact with the tissues with a double action.

Procedure:

The field of procedure includes midface, lower face and neck areas. This procedure should be performed under local anaesthesia with adrenaline using standard aseptic technique in all cases. Depending on the vector for reshaping, the surgical procedures are standardized into five categories for different approaches of facial reshaping as follows:

Techniques with lateral vectors

- Jawline Reshaping (JR) (18%);
- Malar Reshaping (MR) (37%);
- Lateral Reshaping (LR) (13%);

Techniques with vertical vectors:

- Oval Reshaping - Vertical Reshaping (ORV) (18%);
- Oval Vertical Reshaping-H (OR H) (14%)

Post-operative care:

Patients were discharged with standard dressing materials including chlorhexidine, fusidic acid or equivalent ointment and paracetamol after the procedure. The patients were followed up one week, two weeks and four weeks after surgery.

Results: The incidence of adverse event rate in the first week is 13.5%. It drops in the first 4 weeks, 9.6% at week 2, and 5.5% at week 4. The reported adverse events which persist after 4 weeks (number in brackets) include headache(0), redness(0), swelling and bruising(0), persistent surgical site pain(0), surgical site infection(1), asymmetry(0), palpability of threads(0), early recurrence(0), protrusion and extrusion(5), injury of the local anatomical parts like parotid gland(1), post-inflammatory hyper pigmentation(0), bunching, pleating and dimpling(5). Both patient factor, operator factor, material and surgical field can contribute to the incidence. Barb suspension thread surgery is a

relatively safe procedure. With careful selection of candidates, well-planned surgery, and respect to the sterility of surgical field and individual anatomical structures, majority of the incidents are avoidable. Clear post-operative care instruction and prompt intervention should issues arise are essential.

This is a single centre retrospective cohort study on the surgical outcomes. A collection of 200 pairs of thread were used in the period of 2017-2019 (two years). The patients were followed up one week, two weeks and four weeks after surgery. The adverse events are stratified according to defined categories. Photos were taken for documentation after patients' consent.

The incidence of adverse events is sub sectored into 1. Mild (either improves with time, or manageable by simple, conservative and non-surgical intervention) and 2. Significant (needs active, aggressive or surgical intervention, one case of surgical site infection and one case of parotid gland injury). At Week 4, the incidence rate of adverse events is 5.5% (5.0% mild, 0.5% significant).

Discussion:

Office-based procedures have risen substantially every year. According to the American Society for Aesthetic Plastic Surgery (ASAPS), there was over approximately 5% increment each year. The art of aesthetic procedures, as well as from the expectations of the clientele in this category require not only good aesthetic outcome, but also a tidy, swift and uneventful recovery. Overall, across all facilities, 1.9% of patients developed one major complications (2016). A 6-year retrospective review by Byrd et al demonstrated a complication rate of 0.73% [14], compared with 1.9% in another study by Gupta et al. [9]. Among these vascular complication like hematoma and infections were the major complication risks.

The surgeon places the thread using 5 standard approaches (see procedure). In this way the aesthetic outcomes are more predictable. Surgeons can have better surgical handling in the field by improvising the surgery of each individual based on the standard techniques. Apart from home care counseling, routine structured follow-ups are helpful as well (one week, two weeks and four weeks after the surgery). We believe this will facilitate reporting of any issues related to the recovery and early intervention if necessary.

Conclusion:

Barb suspension thread surgery is a generally safe procedure compared with most other aesthetic procedures. Patient factor, operator factor, material and surgical field can contribute to the incidence of adverse outcomes. With careful selection of candidates, well-planned procedure and respect to the sterility of surgical field and individual anatomical structures, majority of the incidents are avoidable. Clear post-operative care instruction and prompt intervention should issues arise are essential.

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