



CASE REPORT

Novel treatment of tracheal fistula after thyroidectomy using compressive taping: report of two cases

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Abstract

Tracheal injury during thyroidectomy is a rare complication, with various techniques available to approach fistula treatment. This report describes two cases of tracheal fistula treated with compressive taping. Both patients presented with subcutaneous emphysema and associated dysphonia post-surgery. Considering the small extent of the lesions, a conservative treatment approach was chosen. Compressive taping proved to be an effective method for treating tracheal fistula, yielding satisfactory outcomes that were comparable to those of other treatments described in the literature. This method not only serves as an adequate treatment but is also presented with a standardized methodology. Moreover, it demonstrated benefits in reducing edema and ecchymosis, producing optimal lesion healing.

Keywords: thyroidectomy; tracheal fistula; taping.

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Introduction

Thyroidectomy is generally a common procedure with low complication rates. Currently, the mortality rate associated with this surgery is approximately 0%, and the risk of complications is <3%. Possible complications include hypoparathyroidism¹, hematomas, infections, damage to the recurrent laryngeal nerve (RLN), which can result in paresis or paralysis of the vocal folds², as well as tracheal injury because of its anatomical proximity, although the latter is very rare³.

When tracheal injury occurs, it is usually identified immediately and promptly repaired, resulting in minimal morbidity. However, its manifestation may be delayed, appearing up to two weeks post-surgery⁴.

While there are not many published reports describing a management protocol for tracheal perforation, it is known that this condition requires adequate and urgent treatment to prevent further complications. Reported solutions are generally divided into conservative and surgical approaches. Among the non-surgical measures, some form of compressive dressing of the region

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is often mentioned, but a detailed description or a standardized protocol is typically not provided.

Case reports

PATIENT 1: A 38-year-old woman with a pathology of non-toxic multinodular goiter underwent total thyroidectomy using the conventional transcervical technique, with no complications arising during the procedure. However, four days into the immediate postoperative period, the patient reported swelling and cervical emphysema that fluctuated with respiratory movements. A laryngoscopy was performed, revealing a tracheal lesion in the anterior cervical region (Figure 1).

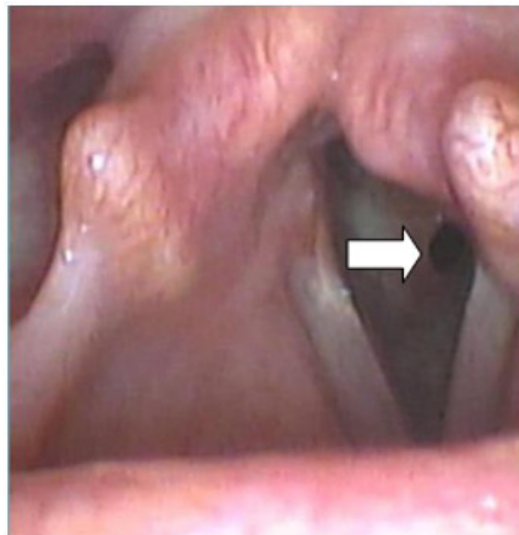


Figure 1. Punctiform lesion in the anterior tracheal region, immediately distal to the vocal folds.

A conservative treatment approach was chosen, involving compressive banding administered by a speech therapist specialized in taping. After three sessions spaced 6 days apart using mechanical taping with high tension ranging from 50 to 75% stretch, the patient's symptoms resolved. A follow-up laryngoscopy conducted one month later showed no signs of tracheal injury.

PATIENT 2: A 55-year-old woman with a nodule <1 cm in the right lobe and Bethesda V fine-needle aspiration (FNA) puncture results was scheduled for a total thyroidectomy, utilizing the transoral endoscopic thyroidectomy vestibular approach (TOETVA).

During the surgery, a punctiform tracheal lesion, measuring less than 5 mm, was detected and promptly treated with an endoscopic suture using absorbable Vicryl 3.0 thread. A pressure increase test (Valsava) with water infusion was performed in the surgical area to verify the absence of any air leakage.

Ten days postoperatively, the patient returned with symptoms mirroring the first case but with added dysphonia. She reported that these symptoms

started after a severe coughing episode. Unfortunately, a laryngoscopy could not be carried out successfully because of the patient's lack of cooperation. However, given the known initial size of the lesion, it was decided to, once again, perform a conservative treatment with compressive taping, similar to the approach used in patient 1. This intervention yielded excellent results, fully resolving the complication.

It is worth noting that the procedures were authorized by the Santa Casa de Misericórdia de Fortaleza Review Board. Furthermore, this study adhered to the ethical standards outlined in the Helsinki Declaration of 1975 and was executed with the approval of the appropriate institutional review board.

Discussion

Complications arising from thyroidectomies, especially tracheal perforations, are rare but require special attention to minimize patient morbidity and ensure comfort during the postoperative period. While most patients recover following a primary repair, secondary complications such as subcutaneous emphysema and infections can occur. Both surgical and non-surgical strategies are employed to manage tracheal injuries.

The taping method, which consists of the application of elastic bandages, serves multiple purposes, including post-surgical analgesia, assistance with lymphatic drainage, and reduction of muscle traction, edema, and the risk of hypertrophic scars⁵, thus ensuring greater comfort and safety for patients during the postoperative period. Moreover, this treatment can prevent suture rupture between the incision tissues.

In the presented cases, the taping technique proved to be effective. To the best of our knowledge, there is no literature documenting the use of compressive taping as a non-surgical treatment for tracheal fistula and subcutaneous emphysema in the postoperative period. Thus, this technique emerges as a new, viable, and cost-effective option for patients.

Conclusion

Although tracheal injuries related to thyroidectomies are rare complications, they require appropriate management because of their potential danger. This study has shown that the non-surgical taping technique is effective in treating small-flow fistulas, thereby reducing patient stress. Consequently, this technique should be standardized, especially concerning dressing size, duration of use, and compression intensity.

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