

Transaxillary Endoscopic Thyroidectomy as an Approach For A Tracheostomised Patient

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1. Abstract

With minimally invasive procedures, modern surgeons can access a specific anatomical area from distance avoiding local incisions. Less surgical morbidity, aesthetic result and lower length of stay are important minimally invasive surgery goals. However, other less generalized benefits may be of great interest for patients, such as the availability of an alternative access route when conventional surgery may be an extreme technical challenge.

The authors present a case of an eighty-year-old patient with a previous tracheostomy who was submitted to minimally invasive thyroid surgery. This case-report aims to present an endoscopic thyroid technique performed to a tracheostomised patient for the first time. Possible benefits as well as risks are reviewed.

Transaxillary endoscopic thyroidectomy was an excellent option and proved to be a safe and effective procedure in tracheostomised patients avoiding any complication or delay in complete recovery.

2. Introduction

The appearance of laparoscopic surgery in the late 1980's radically transformed the philosophy of surgery. For each procedure modern surgeons seek the least traumatic strategy. Furthermore, approaches such as video-assisted surgery can even enhance the standards of quality improving dissection with the benefit of HD amplified images.

In the cervical field two different eras of endoscopic surgery can be identified: the 1990's brought about minimal cervical incisions, a kind of mini open surgery aided by endoscopic view; and the 2000's gave rise to remote access video cervical surgery. These last approaches comprise transcuteaneous and more recently, trans-oral techniques [1-3].

Remote endoscopic thyroid surgery has a major cosmetic advan-

tage, as well as responding to social, professional and religious motivations. A distance approach to the neck can be the very best option for some exceptional local reasons. Conditions such as cutaneous infection or skin burn scars would theoretically benefit from a technique that

avoids cervical incisions.

Our group has significant experience in transaxillary endoscopic cervical approach with more than 100 cases treated with this method, including hemi-thyroidectomy, total thyroidectomy and parathyroidectomy.

The aim of this case-report is to present a first line indication for this approach, hemithyroidectomy in a tracheostomised patient. No previous publication focusing on this specific indication was found.

3. Clinical Case

An 80-year-old man was admitted for hemi-thyroidectomy at another hospital in the context of a relevant multinodular unilateral goitre (Figure 1). Due to anesthesia difficulties during airway approach and endotracheal intubation, glottis oedema and respiratory distress, an emergent tracheostomy was performed. Several complications including pneumothorax, blood aspiration, infection and severe respiratory insufficiency developed. The patient stayed in the Intensive Unit Care for a total of 22 days.

After sufficient general recovery at home, he was referred to our department for thyroid surgery. At that time, he was already enduring a fenestrated tracheostomy tube that could be closed for periods. A significant amount of tracheal secretions needed to be aspirated every day.

Transaxillary endoscopic hemi-thyroidectomy was proposed and accepted by the patient (Figure 2). It was performed as described below:

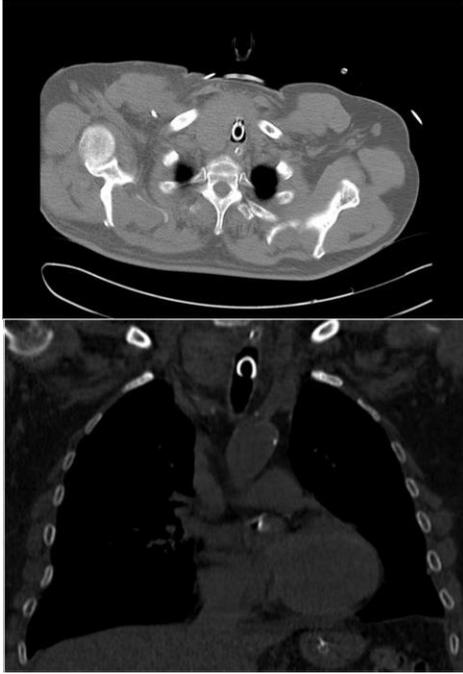


Figure 1: CT scan



Figure 2: Patient before the operation (with the line for Kocher collar incision drawn)

Intubation

The patient stayed in dorsal decubitus position with cervical hyperextension. Under sedation, a video laryngoscopy was performed to visualize the glottis and to aid in safe intubation. After removing the tracheostomy cannula through direct visual contact, a normal endotracheal tube was inserted and the balloon inflated distally to

the stoma.

In case of difficulties during the process, a guide bougie was prepared for retrograde cannulation and rendez-vous intubation. Then sedation was converted to general anesthesia with muscle relaxant.

Surgical procedure

The stoma was filled with gauze soaked in povidone iodine. Pre-incision, a single shot of antibiotic was administered.

The operation was performed using three incisions, two in the armpit and another on the mammillary areola border. Prepectoralis major muscle dissection was done until the cervical subplatysmal space. Care was taken to avoid the tracheostomy tract being broken (Figure 3).

A lateral approach to the right lobe was done splitting most of the lateral fibers of the strap muscles. After ligation of the superior pole, considerable effort was made to mobilize the substernal component of the gland. The recurrent laryngeal nerve was identified and preserved. Resection was completed after inferior thyroid artery ligation and isthmus transaction.

The specimen was removed in a plastic bag through the axilla. A suction drain remained for 2 days.

The tracheostomy tube was reintroduced at the end of the procedure and laryngoscopy was done to verify symmetry and normal vocal cord movements, after proper muscular relaxant reversal.



Figure 3: Intra-operative view

Post-Operative Course

The patient returned to the hospital room one hour after the operation. With paracetamol 1g tid and ibuprofen 400 mg tid he experienced no pain. He took liquids on the same day and solids the next morning. On post-operative day one, he was walking down the corridor and asking to go home. He was discharged to go home on the second day. No hoarseness, subcutaneous emphysema, significant skin numbness or other symptoms were recorded.

No infection or other complications occurred. Healing was successful 2 weeks after the operation. The final result was optimal in the patient's opinion (Figure 4). Pathologic specimen analysis revealed follicular hyperplasia.



Figure 4: At the end of the operation and after two weeks

4. Discussion

In a tracheotomised patient, a cervical incision for a clean surgical procedure like a hemithyroidectomy can be a disaster. A huge risk of wound infection, destruction of the tracheostomy tract, prolonged time of the respiratory stoma as well as late severe tracheostomy complications can be expected.

The remote access that the authors describe here with this particular indication for the first time, seems to have several advantages, including low risk of infection and no interference in the tracheostomy tract.

Tracheostomy is exceptionally suited in case of elective thyroidectomy. Large old goitre, stridor, vocal cord palsy, advanced non-resectable cancer, tracheal invasion, osteomalacia and difficulties in endotracheal intubation can all be formal indications for the procedure. Complications due to tracheostomy are often present and, in a prospective study conducted by ElHabshier with 59 tracheotomised patients having had thyroid surgery for goitre, these included persistent cough (78%), wound infection (38%) and even death (3%) [4]. One of these cases resulting in death occurred when changing the tracheostomy cannula on the second post-operative day. This puts special emphasis on the importance of maintaining a mature tracheostomy track while the stoma is needed.

Usually programmed thyroid surgery is a clean intervention with low risk of infection. This scenario is completely changed when a tracheostomy is present. Expected aided technical difficulties can be found if the usual neck collar incision is chosen as a superior flap conflict with the cannula track would occur. Furthermore, we could expect a higher risk of wound infection and cervical sepsis.

Recent advances have been made in thyroid surgery with several proposed remote endoscopic approaches. The Axilla-Breast (ABT) technique is quite popular among surgeons in eastern countries. Large series published confirms the feasibility, reproducibility and safeness of the procedure, even for substernal goitre. This goes on being a clean surgery with very low incidence of infection. When infection is a major concern, the Trans-Oral approach (TOT) seems to be out of the question. Another possible limitation of TOT in this particular case would be the medial to lateral approach. Since the ABT strategy is a "back door approach" going lateral to medial, a perfect control of the stoma placement can be accomplished. In fact, the operation could be performed with tracheostomy cannula in place.

Owing to the complexity of the presenting case, neuromonitoring of the recurrent laryngeal nerve could add additional safety to the procedure. Unfortunately, this added measure was not available. If any disruption of the tracheostomy track had occurred, reintroduction of the cannula could have been controlled through the transaxillary endoscopic view. In that case, prolonged antibiotic administration would have been recommended. Besides all the efforts for a remote access, if conversion to open procedure were needed, minimal and more caudal approach could be attempted if the upper pole was already ligated at that time. In that case the tracheostomy track could eventually be preserved too.

Finally, the authors conclude that transaxillary endoscopic thyroidectomy was an excellent option in this situation and can easily

be considered the best approach for patients with tracheostomy whenever it is indicated and a skilful surgical team is available.



Figure 5: One month after surgery

References

1. Anuwong A, Kim HY, Dionigi G. Transoral endoscopic thyroidectomy using vestibular approach: updates and evidences. *Gland Surg.* 2017; 6: 277-84.
2. Berber E, Bernet V, Fahey TJ, Kebebew E, Shaha A, Stacj Jr BC et al; American Thyroid Association Statement on Remote-Access Thyroid Surgery. *Thyroid.* 2016; 26:331-7.
3. Liu J, Song T, Xu M. Minimally invasive video-assisted versus conventional open thyroidectomy: a systematic review of available data. *Surg Today.* 2012; 42: 848-56.
4. ElHadi Mohamed ElBashier, Abu Bakr Hassan Widtalla, Mohamed ElMakki Ahmed. Tracheostomy with thyroidectomy: Indications, management and outcome: A prospective study. *Int J Surg* 6 (2008) 147-50.