



A Huge Retrosternal Goiter Resected Through Transaxillar Approach by Robotic Assisted Surgery

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Abstract

We present a case report of robotic transaxillar approach thyroidectomy of a huge retrosternal goiter. A 37 year-old female with an enlarged retrosternal goiter underwent a transaxillary robot-assisted gasless thyroidectomy in the American Hospital of Paris. The main outcome measures were feasibility and safety of this technique.

A huge 15 cm retrosternal goiter was completely resected via the transaxillar incision. There was no conversion to open or combined approach. There were no perioperative or postoperative complications. Recently more complicated cases and large thyroid glands can be treated by robotic assisted surgery alone without converting to open or combined approach.

Keywords: RTS (Robotic Thyroid Surgery); Goiter; Transaxillar approach; Retrosternal goiter

Background

Robot-assisted endoscopic thyroidectomy is an emerging surgical technique first described by Kang et al. [1] Robot-assisted endoscopic surgery for thyroid cancer *via* a transaxillary approach. This innovative procedure is based on the use of the da Vinci[®] Surgical System (Intuitive Surgical, Inc., Mountain View, Calif., USA) that provides the surgeon with three-dimensional, high-definition, magnified visualization of the operative field, and allows control of various instruments with increased precision, tremor filtration, and more degrees of freedom. Since its introduction in 2007 [2], the use of this robotic system for thyroidectomy has been seducing more and more surgeons and patients worldwide [3,4]. Recently robotic assisted thyroidectomy thought transaxillar approach is become widely used in the western world [5], however concern yet to be for large or retrosternal goiters.

Case Presentation

A 37 year old female presented to the American Hospital of Paris with a cervical mass that appeared few months before her presentation, complaining of dyspnea, dysphagia pressure and suffocation in s supine position.

The patient was determined not to be operated by classic cervical approach fearing a neck scar. During this time seeking for treatment the size of the goiter enlarged from 12 cm to 15 cm with marked retrosternal extension.

The neck ultra-sound revealed a huge enlargement of the right thyroid lobe with retrosternal extension, measuring approximately 15 cm. An MRI was made to evaluate the retrosternal involvement which was confirmed by a remarkable sub-sternal extension, tracheal compression and pulling to the contralateral side (Figure 1A, 1B and 2).

The patient was informed about her condition; with such a challengeable surgical case there is a very high chance of converting the operation to open approach. Furthermore, no previous data or successful cases were published in literature. With all of this she insisted on being operated initially with robot *via* transaxillary incision.

Under general anesthesia a 5 cm axillar incision was made, ducking time (working space creation) was 25 min, a transaxillar robotic thyroid lobectomy was performed, the console time was 90 min. the procedure went without complication, the RLN was preserved and monitored *via* NIM (Figure 3). Both parathyroid gland from the operated side were identified and preserved.

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Figure 1A: Frontal/Coronal MRI plane.

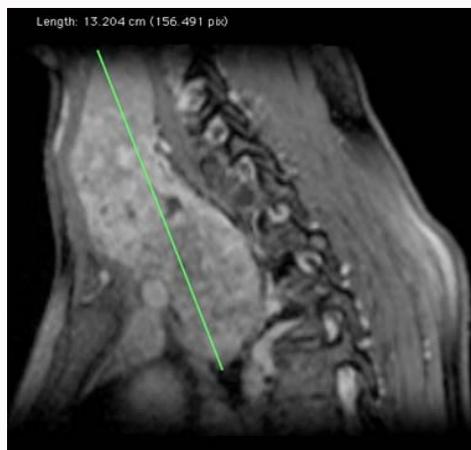


Figure 1B: Sagittal MRI plane.

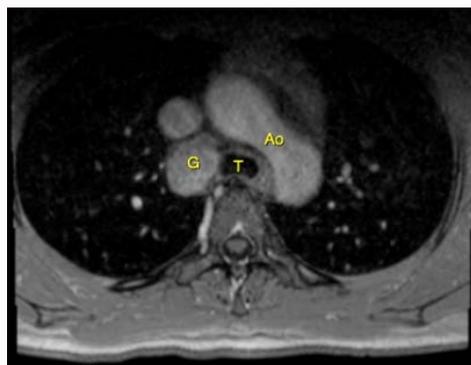


Figure 2: Axial plane.
T: Trachea; G: Goiter; Ao: Aortic Arch

A large specimen of 15 cm length (Figure 4) was extracted only via the transaxillar incision. Then she underwent an uneventful extubation.

During admission the drain was taken out 24 h after the surgery, the chemical test revealed a normal calcium levels, physical examination confirmed normal vocal cord movement bilaterally. The transaxillar incision looks normal, full right shoulder and arm movement and normal post-operative pain well controlled paracetamol. The patient was so pleased and satisfied and was discharged home 72 h

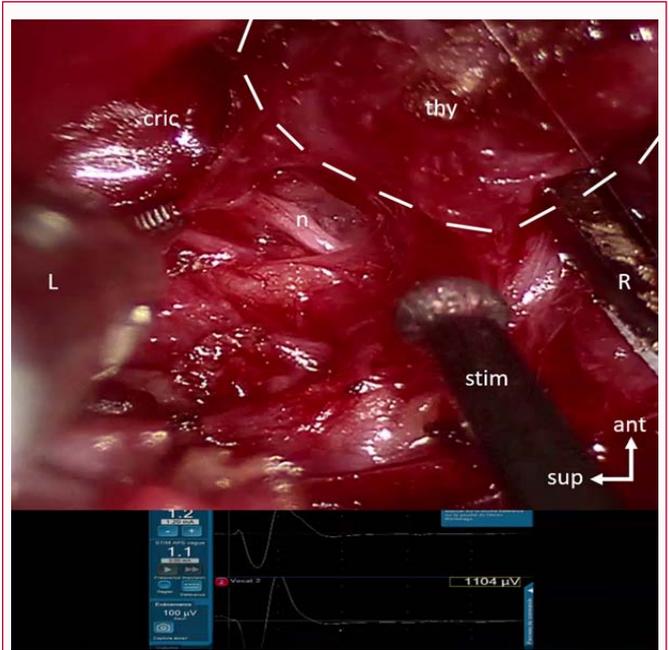


Figure 3: Intraoperative view: Identification and stimulation of the right inferior laryngeal nerve before thyroid resection. Thyroid: right thyroidal; stim: stimulation device; cric: cricoid level; n: right recurrent laryngeal nerve.



Figure 4: Pathological sample-right lobe thyroid gland.

after surgery. At 4 weeks post-operatively follow up the patient was a symptomatic with complete range movements of right shoulder, normal transaxillar scar and normal vocal cord movements.

Discussion

A resection of large thyroid goiter can be surgically challengeable especially cases with retrosternal extension. However, the patient determination of cervical scar-less operation make it more difficult, but not impossible. Knowing that we begin the operation via transaxillar incision with the possibility to convert it to classic cervical approach as it may necessitates, made the decision easier for us.

Also to mentioned, the patient was operated by a very experienced surgeon (P. A) With more than 500 robotic thyroidectomy cases in his resume including (large goiters, thyroidectomies d/t Graves' disease and another complicated cases) with satisfaction results. Recently

more and more difficult and challengeable cases can be treated by robotic assisted surgery considering the accumulated experience for each surgeon.

Conclusion

This case represents the first documented case in literature, emphasis the enormous progress surgeons made with de Vinci robotic thyroid surgery in a short time. This initial experience demonstrates that this technique can be a feasible, safe and effective method for thyroidectomy via transaxillary approach [4,6]. The use of robotic technology for endoscopic thyroid surgery could overcome the limitations of conventional endoscopic surgeries in the surgical management of thyroid disease [7,8]. Still more operations to be done till this method can become an alternative option to the more invasive traditional approaches.

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