

A Case of Large Thyroid Goiter Operated Using Small Incision

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ABSTRACT:

Minimally invasive surgery is the surgery of choice for certain patients to be operated on by an experienced surgeon. The advantages of the operation are a small postoperative scar, minor postoperative pain and a shorter postoperative hospitalisation. For certain patients with large goiter, it is also possible to make a smaller incision given the size of the thyroid gland, without an increased risk of intraoperative and postoperative complications.

KEYWORDS: Large thyroid goiter, minimally invasive surgery, small incision

SAŽETAK:

PRIKAZ SLUČAJA: OPERACIJA IZRAZITO UVEĆANE STRUME KROZ MALI REZ KOZE VRATA

Minimalno invazivna kirurgija je operacija izbora za određene pacijente koju operira iskusni kirurg. Prednosti operacije su mali postoperativni ožiljak, manja postoperativna bol i kraća postoperativna hospitalizacija. Kod određenih bolesnika s velikom gušavošću moguće je napraviti i manji rez s obzirom na veličinu štitnjače, bez povećanog rizika od intraoperacijskih i postoperativnih komplikacija.

KLJUČNE RIJEČI: Velika guša štitnjače, minimalno invazivna kirurgija, mali rez

INTRODUCTION

In the last few decades, different approaches to thyroid surgery have been presented. Over time, the goal was to reduce the surgical incision and to make it less visible. Endoscopic thyroid surgeries have been developed, as well as robotic surgeries (eg. through the axilla) MIVAT surgeries (Minimally Invasive Video-Assisted Thyroidectomy) and later minimally invasive open thyroidectomies have been developed [1]. For these operations, there are criteria that must be met in order for a particular operation to be carried out, ie. in order to be classified in this way.

CASE REPORT

A 45-year-old man presented himself at a thyroid clinic with symptoms of difficulty swallowing and pressure in his neck. In addition, he noticed swelling of the left side of the neck that spreads below the left clavicle, and has been growing rapidly in recent months. Clinically, it was an extremely enlarged left thyroid lobe, which was located in the area from the hyoid bone to the sternum and the left clavicle and spread about 3 cm retrosternally. Ultrasound revealed a large goiter on the left side

of the thyroid gland with measurement of 6.5 (Fig. 1) cm in the highest diameter in horizontal and more than 10 cm in vertical plane (Fig. 2). The entire left thyroid lobe was enlarged, partially cystic, well perfused, with no other suspicious ultrasound features. Fine needle aspiration biopsy confirmed a diagnosis of cystic hyperplastic nodule, without signs of malignancy with a negative BRAF V600 mutation. Due to the symptoms and size of the left thyroid lobe, the patient was advised to undergo a left thyroid lobectomy, which was accepted by the patient and well tolerated. It was agreed with the patient preoperatively that the smallest possible incision (5.5 cm) (Fig. 3, 4.) would be made with regard to the size of the thyroid gland, which was made possible by his constitution, localisation and characteristics of the thyroid nodule. The intraoperative course proceeded without any complications, with the exposure of the recurrent laryngeal nerve and confirmation of its function using Medtronic Nim 3.0 nerve monitoring. Both left parathyroid glands have been identified and preserved with viable vascularisation. The postoperative course went well, no pain at all, the normal function of the vocal cords was postoperatively confirmed.

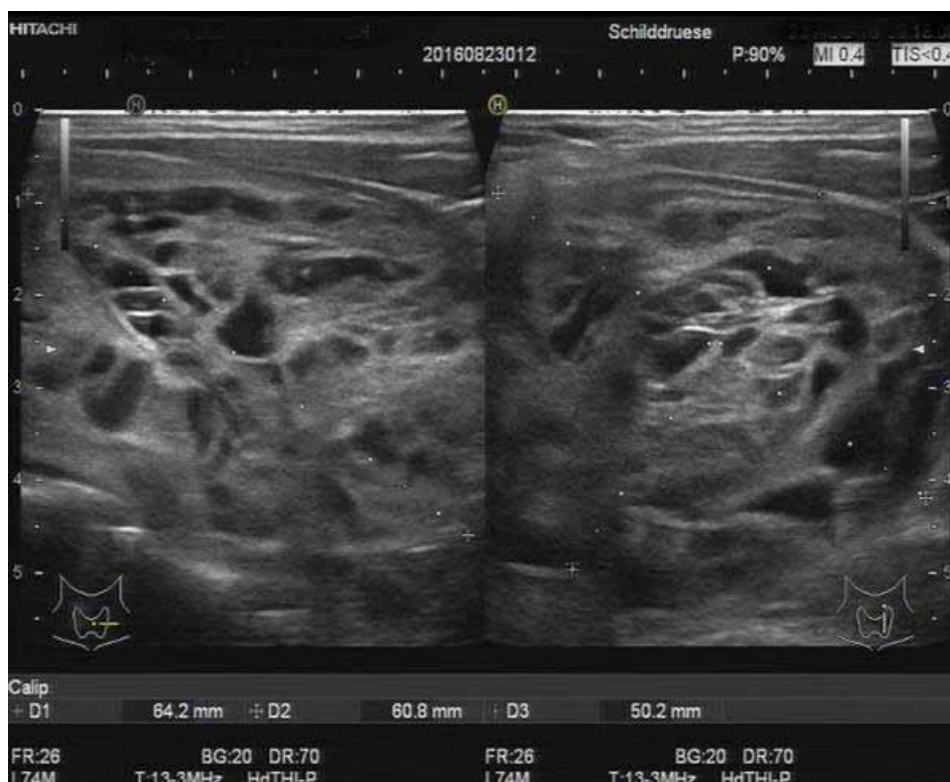


Figure 1. Ultrasound imaging of the middle third of the left thyroid lobe

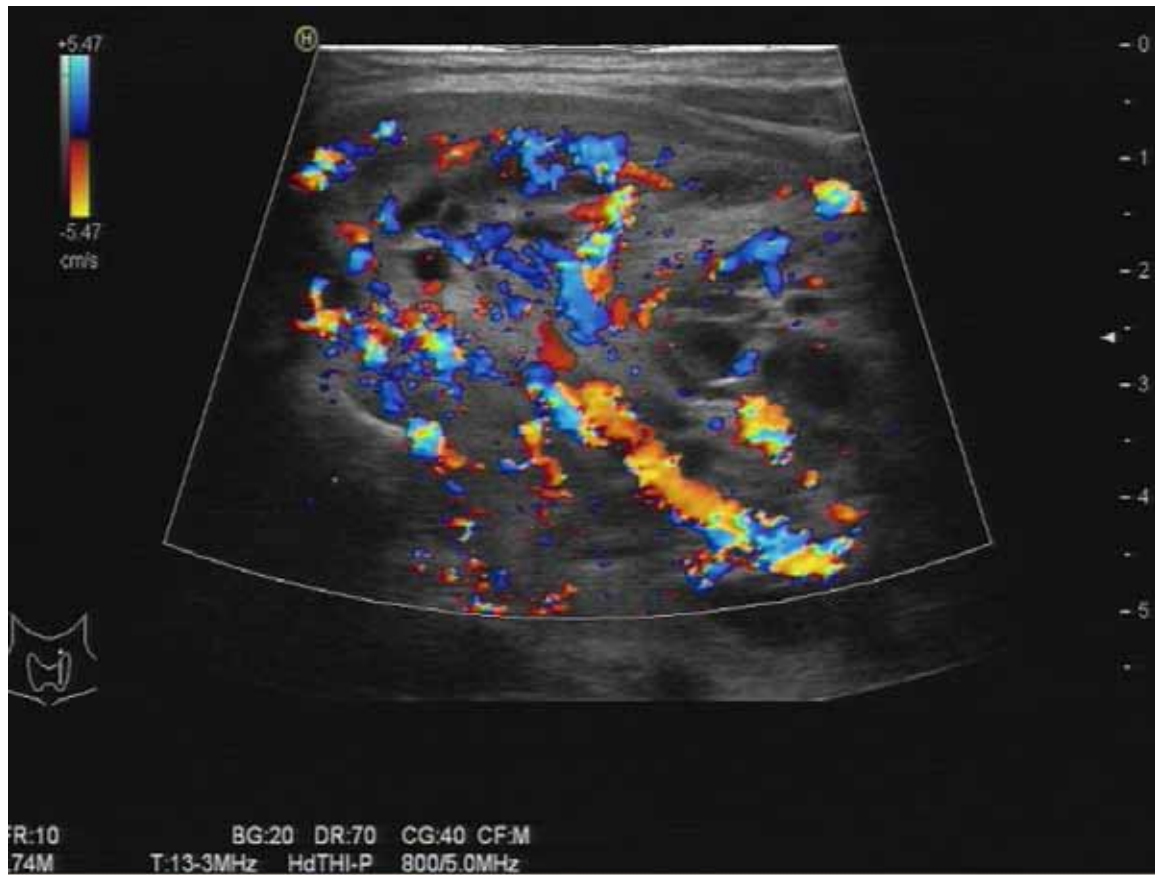


Figure 2. Ultrasound imaging with size and increased perfusion of the left thyroid lobe



Figure 3. Intraoperative finding after delivery of the left thyroid lobe I



Figure 4. Intraoperative finding after delivery of the left thyroid lobe II

DISCUSSION

Thyroid surgery through the smallest possible incision is not associated with an increased risk of postoperative complications if adequate patients are selected for such surgery and operated on by experienced surgeons. These practise reduces the possibility of complications of minimally invasive surgery to a minimum [2,3,7]. The most important and unpleasant complications after thyroidectomy are postoperative bleeding, loss of function of the recurrent laryngeal nerve and loss of function of the parathyroid glands [5, 7]. Ideal patients for minimally invasive surgery are patients of normal physique, who have no suspicion of malignant thyroid disease, have not undergone therapeutic radiation, have no previous thyroid surgery, and do not suffer from hyperthyroidism or autoimmune or other types of thyroiditis [4,6]. Preferably, it should be a diffusely enlarged thyroid gland or a thyroid nodule located in the middle of the lobe or in its lower third. Before the operation itself, it is necessary to carefully choose the location of the surgical incision. In principle, if the incision is more cranial, it can be smaller, of course up to a certain limit. The reason for this is that the upper pole of the thyroid with its blood vessels is quite static and cannot be pulled caudally much. On the other hand, the lower pole of the thyroid gland is quite mobile and during the operation, it can be mobilized and dislocated a lot, even a few centimeters.

A potential problem is the thyroid gland, which its lower pole extends retrosternally, and when the nodule in the lower pole is significantly wider in the horizontal plane than the size of the incision. Because of a high position of the incision and wide nodule, it might be not possible to take out

Surgery begins with the formation of subplatysmal plane, the display and preservation of the anterior jugular veins and the display of strap muscles. After the muscles are dissected from the

thyroid gland, it is necessary to first mobilize the entire thyroid gland, without ligation of blood vessels, unless of course there is bleeding during the process. After that, it is necessary to resect the blood vessels of the upper pole and the middle thyroid vein. By these procedures, a large part of the thyroid gland is already quite mobile. The next step should be the blunt dissection of the rest of the thyroid gland, (the lower pole), and the thyroid gland can be extracted from the thyroid bed. This is the moment with ideal anatomic relationships for identifying the recurrent laryngeal nerve and parathyroid glands.

During a minimally invasive procedure, it is important that each step of the operation is performed as precisely as possible to prevent bleeding [8-10]. If the thyroid is not dislocated from the thyroid bed and bleeding occurs, it may not be easy to establish hemostasis.

CONCLUSION

Surgical approaches are not the only thing that changed in the last couple of decades, but patients' expectation regarding postoperative recovery and esthetic achievement too. Minimally invasive approach allows all of this without of increase of postoperative complications.

In conclusion, we would like to point out that a minimally invasive approach is a relative term, especially in large goiters. In other words, if a patient has a unilateral goiter larger than 10 cm and the operative incision is 5 cm, this is also a minimally invasive approach for that patient, regardless of the incision being 5 cm [2, 9, 10]. Nevertheless, this procedure is not ideal for all the patients. Preoperative patient selection has to be done meticulously, to avoid intraoperative bleeding and necessity of widening of the surgical incision.

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