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TRACHEOMALACIA AFTER THYROID SURGERY FOR A GIANT GOITRE: A RARE PRESENTATION

General Surgery

Dr. Aarushi Vashist Resident Otorhinolaryngology Department of Otorhinolaryngology Pt. B.D.Sharma Postgraduate Institute of Medical Sciences Rohtak-124001,Haryana, India

Dr Udipt Shringi Senior Resident Surgery Department of Surgery Pt. B.D.Sharma Postgraduate Institute of Medical Sciences Rohtak-124001,Haryana, India

Dr. Sudhir Kumar Resident Surgery Department of Surgery Pt. B.D.Sharma Postgraduate Institute of Medical Sciences Rohtak-124001,Haryana, India

Dr. Raman Wadhera Professor otrhinolaryngology Department of Otorhinolaryngology Pt. B.D.Sharma Postgraduate Institute of Medical Sciences Rohtak-124001,Haryana, India

Dr. Manish Verma Professor Surgery Department of Surgery Pt. B.D.Sharma Postgraduate Institute of Medical Sciences Rohtak-124001,Haryana, India

Dr. M.G.Vashist* Senior Professor Surgery Department of Surgery Pt. B.D.Sharma Postgraduate Institute of Medical Sciences Rohtak-124001,Haryana, India *Corresponding Author

ABSTRACT

Multinodular goiter is a common thyroid disorder more common in females. Large goiters weighing more than 500 grams pose a serious problem to the surgeon in terms of tracheal compression, tracheomalacia leading to post operative respiratory obstruction, retrosternal extension, compression of surrounding structures and skin fixation. Authors present their experience with a case of huge goiter weighing more than 500 grams who had tracheomalacia which was identified on the operation table and managed successfully by tracheostomy.

KEYWORDS

Goitre, Tracheomalacia,Tracheostomy

INTRODUCTION

Acquired tracheomalacia is a rare complication that may occur in patients undergoing thyroidectomy for giant goiters.[1,2] Multinodular goiter is a common thyroid disorder with a marked female preponderance. It is estimated that nodular goiter affects 5% of the general population.[3] The usual goiter growth ratio is estimated at 10 to 20% per year, though there is high individual variability in the clinical course of disease.[4] Most of these goiters are of moderate size being less than 100 grams.[5] Glands weighing more than 500 grams are extremely unusual and often result as a consequence of ignorance, neglect, lack of inadequate medical facility, fear of undergoing surgery or due to rapid growth as in malignancy.[6-7] These giant goiters may cause weakness of the tracheal wall due to long standing bilateral compression. The incidence of tracheomalacia has been reported to be between 0.001 to 6%.[1,8] These patients pose a specific surgical challenge and need to be managed by experienced surgeons. It is very important on the operation table to identify patients who have tracheomalacia and can develop respiratory difficulty in the postoperative period. Authors present their experience with a case of huge enlargement of thyroid who had tracheomalacia and a postoperative tracheostomy was done to prevent respiratory difficulty.

CASE REPORT:

A 62 years old female presented with a massively enlarged goiter of more than 10 years duration. She had neck discomfort and some respiratory difficulty for the last one year. She did not have any symptom suggestive of hyper or hypothyroidism. She was neglecting her disease for the fear of surgery. On clinical examination the mass was measuring 18x14 cm, moving on deglutition (Figure 1). The lower border of the swelling could not be clearly defined. The complete blood picture and thyroid function tests were within normal limits. Lateral view of x-ray soft tissue neck revealed some compression of trachea. A CT scan revealed a massive goiter compressing the trachea but there was no significant retrosternal extension. Fine needle aspiration cytological examination revealed colloid goiter and there was no evidence of malignancy. After an informed consent, the patient was posted for surgery (subtotal thyroidectomy). Flexible intubation was performed by the anaesthetist. After adequate extension of the neck supported by sandbag, the neck was explored using a transverse incision over most prominent part of the swelling. Subplatysmal skin flaps were raised and the thyroid gland was exposed by dividing the strap muscles on both sides for adequate exposure. The middle thyroid vein was ligated and divided. The superior pole was defined and superior pedicle was ligated and divided. The thyroid gland was pulled upwards and recurrent laryngeal nerve was identified and saved on both sides and branches of inferior thyroid artery entering the thyroid gland were ligated. First right lobe of thyroid was mobilized and removed after dividing from isthmus. This created a space for mobilization of left lobe which was then removed. Thyroid gland was removed leaving approximately four grams of thyroid tissue on each side. Removed thyroid gland was weighed after removal and it weighed 520 grams. After removal of thyroid , trachea was palpated and it was very soft and tracheal rings were not able to support the curvature of trachea and it was not maintaining the normal curve . Hence a decision of tracheostomy was taken. Tracheostomy was done on the operation table and wound was closed. Post-operative period was uneventful and patient was discharged after a week.

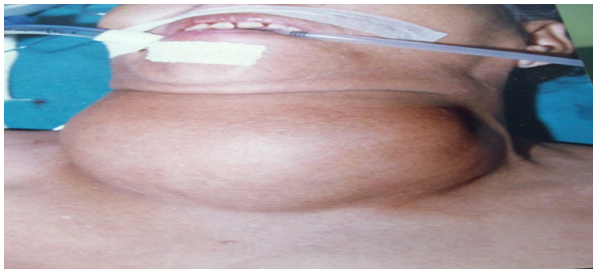

Figure 1: Showing huge thyroid swelling preoperatively on operation table.

DISCUSSION:

Thyroidectomy for massively enlarged goiter could be technically challenging particularly when they are more than 500 grams. The specific problems associated with them are difficulty in securing airway, adequate exposure, blood loss, and potential risk of injury to recurrent la-ryngeal nerve, oesophagus and the parathyroid gland due to distorted and displaced anatomy.[6-7] There is an increased association of tracheomalacia and tracheal compression in these patients.[6-7] The surgical approach in such cases requires careful preoperative evaluation and planning to minimize perioperative morbidity and mortality.

For doing thyroidectomy for a massively enlarged goiter the neck should be well exposed by adequate extension achieved by placing adequate sandbags under the shoulder . The incision should be long, ex-tending laterally and curving upwards for adequate exposure . After reflecting the subplatysma skin flap, adequate exposure is achieved by dividing the strap muscles and if need be the sternomastoid muscle. This ensures safe ligation of the superior pedicle, the middle thyroid vein and branches of inferior thyroid artery. The removal of the gland may be facilitated by dividing it at the isthmus after mobilizing one lobe rather than attempting to remove the thyroid gland as a whole in toto.[9] Authors removed right lobe first by dividing at isthmus and it created enough space for mobilization of left lobe. The removal of the other half then becomes relatively easy due to the space created. Care is taken to preserve the parathyroids and prevent injury to the recurrent laryngeal nerve.[10]

However in patients with massively enlarged goiter the risk is relatively higher.[9,11] It may cause life threatening post operative airway obstruction with a high mortality of 44%.[11-12] Its mechanical effect usually results from compression by the surrounding goiter leading to softening of the tracheal cartilage.[11-12] The trachea may collapse immediately following extubation or as late as 48 hours in the postoperative period. Several techniques have been advocated for identifying tracheomalacia.[13-15] A simple method of detecting tracheomalacia on the operating table is palpation of trachea which feels very soft at the end of surgery.[13] Intra-operative inspection of the trachea by the surgeon is very important for timely detection of tracheomalacia.[9] In such a situation , the patient may need to be intubated in early postoperative period or requires tracheostomy.

In patients at risk of developing upper airway obstruction following thyroidectomy the choice lies between prophylactic endotracheal intubation and tracheostomy or putting a tracheal stent graft.[12] Endotracheal intubation is favoured by many due to its less morbidity.[12] However tracheostomy may be needed in situation where the trachea collapses post thyroid removal.[9] Agarwal et al reported that 29% of patients with tracheomalacia were diagnosed in the recovery room and not on the operation table. After the tracheal wall becomes free from the giant goiter by thyroidectomy tracheal collapse may become clinically obvious.[1] Hence a careful observation of the patient is required in the post operative period after surgery for large goiters even if trachea is not collapsing on the operation table.

Conclusion

Thyroidectomy for a massively enlarged goiter especially when weighing more than 500 grams is technically challenging. Airway management, integrity of adjacent structures as well as anticipating the possible complications should be considered as high priority. There is a significant risk of tracheomalacia in these patients. After surgery, trachea must be palpated and if the trachea feels very soft and tracheal rings are not supporting the curvature of trachea then it is preferable to do tracheostomy to prevent post-operative respiratory obstruction.

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