International Journal of Medicine Research
ISSN: 2455-7404
www.medicinesjournal.com
Volume 3; Issue 1; January 2018; Page No. 79-81

A retrospective study to evaluate the intubation difficulties in cases of thyroid abscess

Dr. Manish Banjare[1], Singh Shalendra[2*]
[1] Associate Professor, Department of Anaesthesia, Mahatma Gandhi Memorial Medical College, Indore, Madhya Pradesh, India
[2] Resident, Department of Anaesthesia, Mahatma Gandhi Memorial Medical College, Indore, Madhya Pradesh, India
[*] Corresponding Author: Singh Shalendra

Abstract
Thyroid diseases have an anaesthetic implication that includes difficult airway management, uncontrolled hyperthyroidism, hypothyroidism and post-thyroidectomy complications. Securing airway via Intubation and Extubation both require skilful management and timely decision to reduce morbidity and mortality in the case of thyroid abscesses and acute suppurative thyroiditis that leads to tracheal compression and deviation. We commenced the anaesthetic management in a series of patients with thyroid abscess leading to tracheal compression and deviation. We managed the cases with either conventional laryngoscope with bougie as facilitator, awake fiberoptic intubation and guided extubation.

Keywords: thyroid abscess, fiberoptic, anaesthetic

Introduction
Anaesthetic management of the airway may be challenging in patients with large neck mass like a huge thyroid abscess, lymphoma because these patients are at risk for sudden complete airway occlusion resulting in hypoventilation and hypoxemia. Acute suppurative thyroiditis (AST) leading to thyroid abscess is a rare clinical entity. Thyroid abscess and AST represent only 0.1 to 0.7% of surgically treated thyroid pathologies [1]. AST affects specially patients with pre-existing thyroid gland pathology and in childhood is associated with local anatomic defects [2]. Acute suppurative thyroiditis is rare entity, when discovered, a thyroid abscess usually presents acutely as a painful, enlarging mass, the differential diagnosis for a painful thyroiditis comprises of sub-acute and chronic thyroiditis. Acute suppurative thyroiditis with abscess formation, although rare, is a formidable clinical scenario with morbid complications. The diagnosis of a thyroid abscess is often delayed in view of investigations, this disease entity may present with a dismal clinical outcome, A review of the past literature shows fewer cases, majority of which belongs to paediatric age group with predisposing factors like pyriform fistulae or thyroglossal ducts. Other predisposing factor includes chronic goitre and malignancy of thyroid. As thyroid abscess and acute suppurative thyroiditis are seldomly found and no case series on anaesthesia related complications were published. We report a retrospective series of 11 cases with 10 euthyroid and 1 hypothyroid status on initial presentation with clinical features of acute suppurative thyroiditis in a period of 7 years.

Case Report
We examined the medical records of all thyroiditis cases between January 1, 2005 and December 31, 2011 in department of anaesthesia MGM Medical College and My Hospital Indore. Diagnosis of Acute suppurative thyroiditis was made in eleven cases. All cases were managed surgically. Medical histories of these cases were reviewed for patient's age and sex, thyroid status, mallampatti grading, hemodynamic status, drug history and associated co-morbidities. Anaesthetic management of a patient's with thyroid abscess depends on the size of the thyroid gland, vascularity, compression on the surrounding organs and sub-sternal extension. This required careful preanaesthetic assessment of the patient with symptoms and control of the disease, airway assessment, blood investigations and imaging studies. Our patients had thyroid swellings because of infection [Figure 1] and [Figure 2], [Figure 3] and [Figure 4]. Patients generally presented with symptoms of pyrexia, sore throat, midline tender swelling anteriorly in the neck, erythema of skin, difficulty in swallowing, hoarseness of voice and limitation in movement of head. Tenderness implicates inflammation or haemorrhage in gland. Tachycardia along with leucocytosis was common. Investigation revealed T3, T4, and TSH as typically normal but thyroglobulin levels were found to be on higher side. Radionuclide scan was usually normal while some cases presented with cold nodule in the area of abscess formation. After infection subsided we looked for pyriform sinus fistula for which barium oesophagogram was done. Ultrasound was done to demonstrate intra or extra thyroid abscesses and solid or mixed lesions of the thyroid as well as adjacent inflammatory nodes.




Fig 1 **fig 2** **fig 3** **fig 4**

Result

Table 1

No	Age	Sex	Duration	Thyroid status			Mallampatti grading	laryngoscope	
				Euthyroid	hypothyroid	hyperthyroid		success	failure
1	60	F	60 days	+	-	-	Grade 3	+	-
2	55	F	15 days	+	-	-	Grade 3	+	-
3	45	F	9 days	+	-	-	Grade3	+	-
4	30	F	11 days	+	-	-	Grade 2	+	-
5	56	M	15 days	----	+	----	Grade4	-	+
6	02	F	2 days	+	-	-	Grade2	+	-
7	08	M	14 days	+	-	-	Grade 3	+	-
8	32	F	9 days	+	-	-	Grade3	+	-
9	37	F	7 days	+	-	-	Grade 4	-	+
10	34	F	11 days	+	-	-	Grade 3	+	-
11	41	F	17 days	+	-	-	Grade 3	+	-

Table 2

No.	Cormack lehane grading	Alternative methods
	Grade 3	Bougie
	Grade3	Bougie
	Grade 3	Bougie
	Grade 2	-
	Grade4	Fiberoptic
	Grade2	-
	Grade3	Bougie
	Grade 3	Bougie
	Grade 4	Fiberoptic
	Grade 3	Bougie
	Grade 3	Bougie

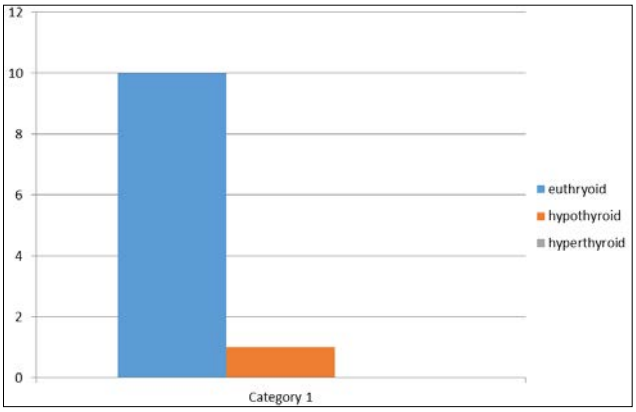

Fig 5: thyroid status

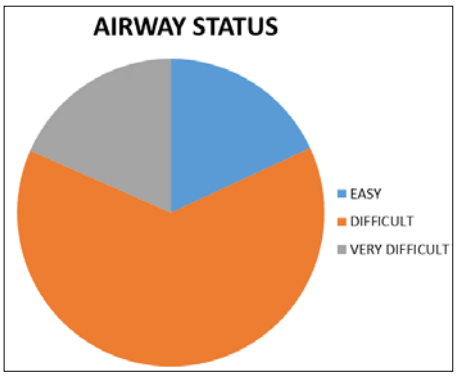

Fig 5

Discussion

Thyroid abscesses and acute suppurative thyroiditis are uncommon, surgically treated thyroid pathologies. More commonly encountered in children than adults, they are associated with poorly indicative clinical symptoms, making the diagnosis difficult. Schweitzer and Olson in 1981, noted that only 39 cases of thyroid abscess had been reported in the medical literature since 1950, of which 16 were children.

In present study out of 11 cases, 10 cases had euthyroid status and one had hypothyroidism. There are multiple modalities to manage the difficult airway in the patient with thyroid enlargement however it depends on the anaesthesiologist's expertise and familiarity. If the enlargement was small, and there was no deviation or compression, and if the airway examination was normal, then we had proceeded for a normal

airway management. Bouaggad *et al*. found in his study that there was an easy tracheal intubation in 36.9% patients and mild tracheal difficult intubation in 57.8% patients.

However, 5.3% patients had moderate to major difficult airway.[5,10] while in our study we found 18.1 % of case were easy and 63.5% cases were difficult and remaining 18.4% cases were extremely difficult cases. Keeping the clinical symptoms in mind and imaging studies, two of our patients were in need of an awake fiberoptic intubation after failure of conventional laryngoscopy as they belonged to mallampatti grade 3 and Cormack lehane grading 4. This could prevent conditions like "can't ventilate and can't intubate" scenarios occurring after induction of anaesthesia due to a complete tracheal collapse. In this condition, lifting of the thyroid mass or rigid bronchoscopy could only help keeping the airway patent.

Direct laryngoscopy was done in 9 patients out of whom 7 cases were facilitated by bougie.

An awake fiberoptic intubation avoids tracheostomy and its complications in those patients.

Saxena *et al*. mentioned that awake fiberoptic intubation prevents much bleeding and oedema that leads to higher success of airway management [8]. Sendasgupta *et al*. and Tan and Esa stated in their studies that awake fiberoptic intubation offers more hemodynamic stability, better patient tolerance and patency of the airway [7, 11]. In present study out of 11 cases only 2 cases required fiberoptic intubation and were found to be hemodynamically stable.

Ghai *et al*. suggested that early fiberoptic intubation should be planned when there is suspicion of significant airway obstruction [4, 9]. Eldawlatly *et al*. stated that the success of awake fiberoptic is based on preoperative airway assessment that predict difficult airway, proper planning, and it is well-tolerated if explanation is given to the patient about procedure, risk and co- morbidities [3].

Eldawlatly *et al*. had also stated that the airway access under local Anaesthesia constitutes better alternative to failed fiberoptic intubation [6].

An awake extubation is as important as awake intubation in the case of a large thyroid abscess. Preoperative CT scan studies had enabled us to assess the degree of tracheal cartilage erosion.

Conclusion

A single universal technique of intubation may not be favourable in all circumstances. Careful selection of technique has been done as per risk versus benefit ratio of various techniques. Proper preoperative airway assessment, preparation, timely decision and skilful management reduce the morbidity and mortality in difficult airway cases involving thyroid enlargement, because of infections like acute suppurative thyroiditis and thyroid abscess. By this case series we conclude that in cases of thyroid enlargement due to infections where difficult airway are encountered during conventional laryngoscopy we should be prepared for alternative methods like bougie, fiberoptic bronchoscope, supraglottic devices like laryngeal mask airways for better anaesthetic management.

References

1. Menegaux F, Biro G, Sehatz C, Chigot JP. Thyroid abscess. Appropos of 5 cases, Ann Med Interne Paris. 1991; 142(2):99-102.
2. Echevarria Villegas MP, Franco Vicarioo R, Solano Lopez Q, Landin Vicuna R, Teira Cobo R, Miguel de la Villa F. Acute suppurative thyroiditis and Klelbsiella pneurnoniae sepsis A case report and review of the literature. Rev-Clin-Esp. 1992; 190(9):458-459.
3. Eldawlatly A, Takrouri M, Elbakry A, Ashour M, Kattan K, Hajjar W, *et al.* Perioperative management of huge goiter with compromized airway. Internet J Anesthesiol, 2002; 7:2.
4. Ambareesha M, Upadhya M, Ranjan RK, Kamath S. Pre-operative fiberoptic endoscopy for management of airway in huge thyroid. Indian J Anaesth, 2003; 47:489-90.
5. Bouaggad A, Nejmi SE, Bouderka MA, Abbassi O. Prediction of difficult tracheal intubation in thyroid surgery. Anesth Analg, 2004; 99:603-6.
6. Eldawlatly A, Alsaif A, AlKattan K, Turkistani A, Hajjar W, Bokhari A, *et al.* Difficult airway in a morbidly obese patient with huge goiter: A case report and review of literature. Internet J Anesthesiol, 2006, 13:1.
7. Sendasgupta C, Sengupta G, Ghosh K, Munshi A, Goswami A. Femoro-femoral cardiopulmonary bypass for the resection of an anterior mediastinal mass.Indian J Anaesth, 2010; 54:565-8.
8. Saxena KN, Kumar S, Taneja B, Gaba P. Awake fibreoptic intubation in the sitting position in a patient with a huge goitre. Case Rep Anesthesiol, 2011; 2011:352672.
9. Ghai A, Hooda S, Wadherra R, Garg N. Gross tracheal deviation: Airway challenges and concerns – Two case reports. Acta Anaesthesiol Belg, 2011; 62:203-6.
10. Bartolek D, Frick A. Huge multinodular goiter with mid trachea obstruction:Indication for fiberoptic intubation. Acta Clin Croat. 2012; 51:493-8.
11. Tan PC, Esa N. Anesthesia for massive retrosternal goiter with severe intrathoracic tracheal narrowing: The challenges imposed - a case report.Korean J Anesthesiol, 2012; 62:474-8.