Original Research Paper

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INTUBATION ON A CHAIR: UNCOVENTIONAL METHODS OF AIRWAY CONTROL

Anaesthesiology

KEYWORDS:

VIKAS SRIVASTAVA MD , IFCCM, ARMY HOSPITAL (R&R), NEW DELHI

SANIL MOHAN MD, ARMY HOSPITAL (R&R), NEW DELHI

ABSTRACT

64 year old lady with no co-morbid illnesses was admitted with gross swelling of neck and sub-mandibular space with sepsis. CT scan showed Retropharyngeal abscess with bilateral thrombosis of neck vessels. She was evaluated for an emergency drainage of the abscess and found to have difficult airway. She was placed semi recumbent on a chair next to the operation table and with a flexible fiberoptic laryngoscope, oral awake fiberoptic assisted intubation was done, she was lifted onto the OT table and then given IV anaesthetic drug with muscle relaxants. Ventilated postoperatively and extubated next day morning.

Introduction

Retro-pharyngeal Abscess can be nightmarish experience to even the most accomplished anaesthesiologist. It leads to inflammation of the neck causing oedema of airways, poor mouth opening and angiodema leading to difficult intubation situation. The patient reviewed the case and gave written permission for the authors to publish the report.

Description of the Case

64 year old lady with no co-morbidities presented to ENT OPD of a large teaching hospital with complaints of swelling and pain in the neck for past 15 days.

She was admitted to ICU of this hospital on D15 of illness and listed her for emergency drainage of the retropharyngeal abscess. On initial evaluation, she was a short statured lady with short and bull neck. She was semi-conscious, however responding to verbal conversation with few words, slightly breathless, HR – 130/min,

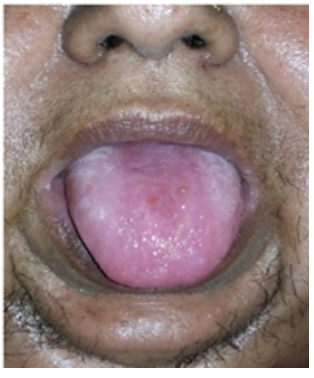


Figure 1. Modified Mallapatti Score: CL IV



Figure 2: Note the short and oedematous neck and submandibular oedema

at home when she started having pain and then swelling of the upper neck and sub-mandibular for which she was given oral antibiotics with a presumptive diagnosis of Acute Pharyngitis, but to no benefit. She contacted a peripheral hospital where the physician found that she has deep neck tissue infection and ordered a CECT on Day 12 of illness which showed that she has a retropharyngeal abscess of size 4.4 cm x 5.6 cm x 14.7 cm along with thrombosis of bilateral Internal Jugular veins, bilateral common carotid arteries, vascular collaterals, hypodense lesion in superior mediastinum, bilateral pleural effusion and collapse consolidation of Rt lung. She was diagnosed as a case of retropharyngeal abscess and started on IV antibiotics and was referred to our centre.

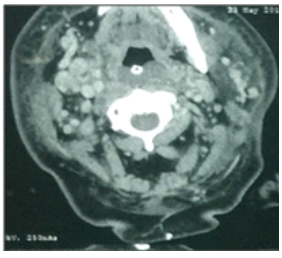


Figure 3: CECT scan of the neck showing gross soft tissue oedema, bilateral thrombosis of neck vessels and Retro-pharyngeal abscess



Figure 4: Large Retropharyngeal abscess with gross oedema of the neck

BP – 160/90 mmHg, RR – 30/min, shallow respiration, T – 38.2oC, air entry was present bilaterally in lungs without any crackles/wheeze. Other systemic examination was normal. On examination of the airway, she was MP Cl IV, mouth opening about 3 cm and extension of neck not more than 30o. Investigations done urgently showed Hb - 10 gm%, TLC – 19,500 /mm3, Bld Urea - 21 mg%, Serum Creatinine – 1.8 mg%. ECG – WNL, ABG showed mild respiratory acidosis with incomplete compensation, X-Ray chest showed mediastinal widening.

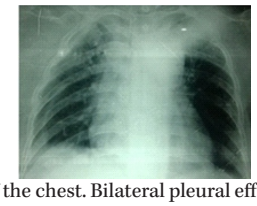


Figure 5: AP view of the chest. Bilateral pleural effusion and collapse consolidation of Rt Lung

The anesthetic plan was to intubate her awake with flexible fiberoptic laryngoscope and armoured tube.

Scenario

She was wheeled into the OT immediately after preparation on a patient transfer trolley in a sitting position. Difficult airway was anticipated and it was decided that she should be intubated with fiberoptic assistance without narcosis and without muscle relaxation as preservation of muscle tone is vital. She could not lie on the operation table and became increasingly breathless. As a Plan B she was lifted from the Operation Table onto an arm-chair and made to sit with her head hanging back and legs resting on another chair placed in front. She was attached to standard monitoring, premedicated with Inj Glycopyrollate 0.2 mg IV, oral airway was sprayed with few puffs of Lignocaine 10%. Difficult airway cart was prepared with flexible fiberoptic video laryngoscope. She was explained the procedure and told to cooperate with instructions given. However due to combination of hypoxia, sepsis and ensuing encephalopathy, she could not comprehend and cooperate. Hence, three Operating Room Assistants were asked to hold her still during the procedure. Bite guard was positioned between the incisors with some difficulty; size 7.0 ETT armoured was loaded on the fiberoptic scope and inserted orally. Care was taken to remain away from the posterior wall and not cause trauma to abscess. Glottis was visualized in the first attempt itself, the vocal cords were sprayed with 5 ml of Lignocaine and the patient asked to take a deep breath. With the cords separating, the scope was passed beyond the cords and carina visualized, the ETT was rolled into place, cuff inflated and connected to closed circuit. The whole procedure took 49 sec. Since she was struggling on the tube, she was induced with Inj Propofol 1 mg/kg IV and paralyzed with Inj Atracurium 0.5 mg/kg on the chair itself. After muscle paralysis was adequate, was lifted onto the OT table and laid supine. Anaesthesia was maintained with mixture of Oxygen + Air + Sevoflurane to keep MAC at 0.8 – 1. Patient was positioned in tonsillectomy position after which throat was packed to guard against any secretions from passing into lungs. Drainage of the abscess was carried out and the surgeon opened all three cavities to ensure complete drainage. Throughout the surgery she remained haemodynamically stable. At the end of surgery, the throat pack was removed but she was not reversed. She was shifted to ICU for elective post-op ventilation. She remained haemodynamically stable post-operatively with sedation was with Inj Fentanyl @ 50 mcg/hr to keep MRSS (Modified Ramsay Sedation Score) at 3-4. She was continued on antibiotics – Meropenam + Teicoplanin + Clindamycin along with other supportive medication. She was on CMV mode of ventilation till evening, shifted to ASV mode of ventilation at 1900 hrs, shifted to PSV mode of ventilation next day morning 0700 and extubated at 0900 hrs on D1 post surgery. She continued to make uneventful recovery and was shifted out of ICU on D5 and discharged from the hospital on D14. Postop CT scan on D10 still showed bilateral cervical vascular thrombosis.

Discussion

Retropharyngeal abscess are deep neck space infections which can possibly cause airway obstruction and life threatening emergency (1). There are three spaces where these infections can occur. First space is the retropharyngeal space which is just posterior to pharynx (nasopharynx, oropharynx, hypopharynx), larynx and trachea. Cranially it extends from the base of the skull, caudally to the mediastinum at the tracheal bifurcation and laterally it is limited by the carotid sheath. The second space is the danger space between the alar fascia and prevertebral fascia and the third space is between prevertebral fascia and longus collis muscle of the spine. The danger space extends down till the diaphragm and the prevertebral fascia to the insertion of psoas muscle (2). Hence these space infections can cause potentially fatal mediastinitis. These infections are more common in children from age group 6 months to 6 yrs with peak incidence of 3 years. However in our case it was a lady in seventh decade of life. The infection in these spaces is either by spread of infection in another focus in the body or by direct penetrating trauma. Offending organisms are generally Staphylococcus aureus, β haemolytic Streptococcus and other anaerobic organisms (3). Symptoms start with sore throat, fever, odynophagia, neck pain, dysphagia progressing to dyspnea. Physical examination may show swollen and bulging posterior pharyngeal wall. In our case it was not possible as prolonged course of illness had obliterated the airway examination. Neck stiffness and lymphadenopathy are indicators of infection in the viscinity and this should not be confused with meningitis. Apart from routing investigations to establish infection, the definitive imaging of choice remains CECT scan of the neck and chest to establish the extent of abscess. Vital time should not be lost in conducting tests and once diagnosis of abscess is made, draining it is the most definitive treatment.

Anaesthesiologists are generally consulted the moment these patients arrive in the hospital for evaluation of the airway as there could be impending respiratory obstruction. Airway control could precede CECT scan. The treatment is either medical or surgical, but surgical is the preferred treatment if an abscess if present (4). Two approaches are mentioned: External drainage if the abscess has extended to the hyoid bone and Intra-oral drainage after induction of general anaesthesia if the abscess if restricted to retropharyngeal space. For external drainage, the ideal position is for the patient to sit on the OT table with forward crouch, under local anaesthesia, a stab incision is made on the dependent point and abscess drained. For intra-oral drainage, airway evaluation is extremely important. It is essential to ensure preservation of spontaneous ventilation. The patient maybe intubated with conventional laryngoscopy or with fiberoptic assistance while breathing spontaneously. This could be done awake or after inhalational induction. IV anaesthetic agents are best avoided in these cases. Patients with less serious airway compromise maybe induced with Sevoflurane and patients with more serious compromise maybe intubated awake and more convenient option is fiberoptic assisted. At the end of surgery, decision can be taken whether to extubated or electively ventilate these patients. If extubation is planned, steroid can be administered to reduce oedema and patients should be awake and able to maintain airway before ETT is taken out. Extra care must be taken as airway oedema may increase postoperatively and cause a catastrophy postoperatively in ward (5).

Conclusion

Retropharyngeal abscess is a rare but important case for anaesthesiologist as airway management is not just difficult but unpredictable. In this case, exceptional difficulty was encountered and successfully managed. Awake fibroptic intubation, inhalational induction and late extubation are pearls of wisdom in these cases.

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