
Management of Case of Acromegaly for Emergency Exploratory Laparotomy for Intestinal Obstruction

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Abstract: Acromegaly is rare disorder caused by either excessive secretion of growth hormone or pituitary adenoma secreting excess growth hormone. Enlargement of face, tongue and mandible with involvement of soft tissues and connective tissues makes airway difficult. Associated medical disorders and difficult airway leads to anaesthesia challenging in a patient of Acromegaly. We report a case of Acromegaly with hypertension, diabetes mellitus and difficult airway.

Keywords: Acromegaly, Difficult Airway, Emergency exploratory Laparotomy

INTRODUCTION

Acromegaly was first described by Marie in 1886 [1]. In 1983 Melmed reported raised levels of growth hormone and IGF-1 are responsible for this syndrome [2]. Cushing in 1909 found that pituitary dysfunction was the aetiology of the disease [3]. It is rare disorder with incidence of 3 to 4 cases per million and prevalence is around 50 to 70 cases per million [4]. It occurs commonly both in males and females and at the age of 40 to 50 years patients are usually diagnosed [5]. Over secretion of growth hormone due to excessive secretion of growth hormone releasing hormone or pituitary tumours secreting excess growth hormone in Acromegaly patients. Coexisting cardiovascular diseases and respiratory problems combined with airway involvement create challenge for the anaesthetist [6].

CASE REPORT

40 year old male patient came with pain in abdomen, constipation since 3 to 4 days. He was diagnosed as intestinal obstruction and posted for emergency exploratory laparotomy. On general examination his pulse rate was 120 / min, regular, blood pressure was 170/100 mm of Hg. On airway examination he had enlarged face, enlarged tongue and prognathism with malocclusion contributing to Acromegaly Facies. His upper half of body was

disproportionate with lower half of body. He had spade like hands and legs. His voice was husky. On blood investigation his complete blood count was normal. Blood sugar was 289 mg/dl, liver function test and kidney function test was normal. On chest x-ray mild cardiomegaly was present. ECG was done which showed no significant abnormality. We planned for general anaesthesia with endotracheal intubation.

Preoperative informed consent and additional tracheostomy consent was taken. Nil by mouth status was confirmed. In operation theatre monitoring was done with electrocardiography, noninvasive blood pressure, pulseoximeter and ETCO₂ monitor. Two peripheral lines one in right upper limb 18 G and second in left upper limb 20 G was taken. In premedication injection Ranitidine 80 mg, injection ondansetron 8 mg was given. We kept ready difficult airway cart with LMA, Intubating LMA, Flexitip Laryngoscope, Bougie, Cricothyrotomy set, Fiberoptic bronchoscope and tracheostomy set. Preoxygenation given for 5 mins. Inj Glycopyrolate 0.5 mg, inj midazolam 2 mg, inj fentanyl 100 ug was given. Induction was done with inj propofol 100 + 20+ 20 + 20 mg and sevoflurane 6% with inj succinyl choline 120 mg. On laryngoscopy we found Cormack Lehane grade III. So with the help of Bougie and cricoid pressure, we successfully intubated the patient with 8.5 no

endotracheal cuffed tube. Maintenance was done with O₂, N₂O, Isoflurane, Dexmedetomidine and vecuronium. Injection Insulin infusion at the rate of 1 unit per hour was started for strict control of blood sugar and hrly sugar monitoring was done. Intraoperative pt was stable. There was minimal blood loss and urine output was adequate. Pt was reversed with inj neostigmine 3.5 mg, inj glycopyrolate 0.5 mg and well extubated. Postoperatively pt was shifted to surgical intensive care unit for further monitoring. Recovery was uneventful. Patient was discharged at home on 8th postoperative day.

DISCUSSION

Acromegaly is one of the rare and endocrine disorders caused by either excessive secretion of growth hormone or pituitary adenoma secreting excess growth hormone. Acromegaly was first described by Marie in 1886 [1]. Cushing in 1909 found that pituitary dysfunction was the aetiology of the disease [2]. Incidence of disease is 3 to 4 cases per million and prevalence is approximately 50 to 70 cases per million [4]. It is found commonly both in males and females and patients are mostly diagnosed at the age of 40 to 50 years [5].

Acromegaly makes anaesthesia challenging due to difficult airway and its close association to multisystem involvement [5, 7]. It is associated with hypertension, diabetes mellitus [2, 4, 8], aortic valve incompetence, mitral valve incompetence, congestive cardiac failure, obstructive sleep apnoea, osteoarthritis, carpal tunnel syndrome and myopathy [9]. Cardiac complications are very well known in these patients [10, 11]. Acromegaly causes glucose intolerance due to resistance to the effects of insulin, as hyperglycemia is identified to exacerbate various types of cerebral ischemia [12]. P.A. Seidman et al also observed decreased urine output despite adequate fluid volumes during surgery. It may be due to lower cardiac output, fluid volume dysautoregulation or renal dysfunction in Acromegaly patients [5].

Soft tissue involvement results in enlargement of face, enlargement of tongue, spade like hands and legs. Bony involvement causes large mandibular length, prognathism with malocclusion which poses difficulty in mask ventilation. Patient also has both extremities enlarged. In connective tissue involvement vocal cords can be enlarged resulting in husky voice and recurrent laryngeal nerve palsy can be presented with hoarseness of voice [5,7].

In our patient all features of acromegaly were present. Mandibular length was 10 cm. Tongue was large. Mouth opening was 3 fingers as shown in Fig 1, Mallampatti grading was grade IV Thyromental distance was 7.5 cm, Hyomental distance was 8 cm and sternomental distance was 8.5 cm. His RHTMD (Ratio of height to thyromental distance) was 25 cm. Schimtt

et al 2002 and Krobbuaban et al 2005 have reported that ratio of patient height in cm to thyromental distance in cm has better predictive value for predicting difficult laryngoscopy than thyromental distance alone. If ratio is lesser than 23.5 cm an easy laryngoscopy may be anticipated as in our case ratio was 25 cm [13]. Upper Lip Bite test was grade II.



Fig-1: Features of acromegaly

But we could manage to ventilate the patient by jaw thrust manoeuvre with difficulty and we required Gudel's 5 no oropharyngeal airway. With anticipated difficult airway we were ready with difficult airway cart. On laryngoscopy Cormack Lehan grading was grade III, so with the help of ventilating bougie and cricoid pressure we successfully intubated the patient. Apart from difficult airway patient had uncontrolled blood pressure and blood sugar. So we used injection Dexmedetomidine infusion at the rate of 1ug / kg bolus for 10 min followed by 0.5 ug / kg / hr. In intraoperative period haemodynamic was stable. For control of blood sugar injection insulin infusion at the rate of 1 unit per hour was given and hrly sugar charting was done. Alpha 2 agonist inj Dexmedetomidine has crucial role in such type of cases. It decreases requirement of muscle relaxant, inhalational anaesthetics so helpful for early recovery and smooth extubation in difficult airway cases and additionally it is potent analgesic.

We successfully extubated the patient and shifted to surgical intensive care unit for further monitoring. Recovery was uneventful and patient was discharged on 8th postoperative day.

CONCLUSION

In such patients detailed preanaesthetic evaluation is compulsory, proper optimization of patient before surgery is mandatory. Preoperative anticipation of difficult airway and adequate preparation for management of it has crucial role in recovery of patient.

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