A Unique Case of Ankylosing Spondylitis With Acute on Chronic Laryngitis Secondary To Gastro Esophageal Reflux Disease (Gerd) Presenting For Total Hip Replacement Surgery"

Medical Science

KEYWORDS : IAnkylosing spondylitis, difficult airway, fibre-optic intubation, chronic laryngitis, GERD

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ABSTRACT

Perioperative management of a case of ankylosing spondylitis with co-morbidities presenting for major surgery poses significant challenges to anaesthesiologist in view of difficulties encountered in airway management, technical challenges in performing central neuraxial block and associated involvement of various organ systems. This difficulty is further confounded in the setting of pre-existent chronic laryngitis with hoarseness of voice and GERD. We report a case of ankylosing spondylitis in an elderly male associated with severe flexion deformity at neck with chronic laryngitis and essential hypertension posted for total hip replacement surgery.

FIGURES & TABLES

Figure 1 Patient on stack of pillows
(TO BE INSERTED AT THE START OF SECOND PARAGRAPH UNDER PREOPERATIVE EVALUTATION)

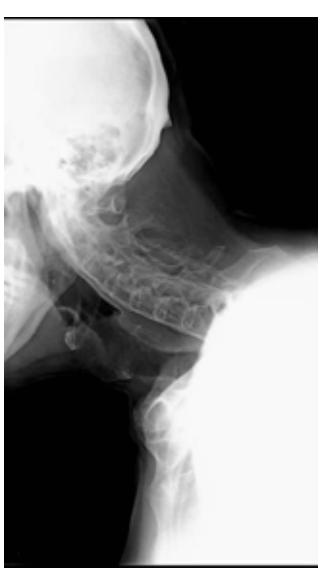

Figure 2 C Spine X ray showing extension
(to be included at the end of third paragraph under preoperative evaluation)

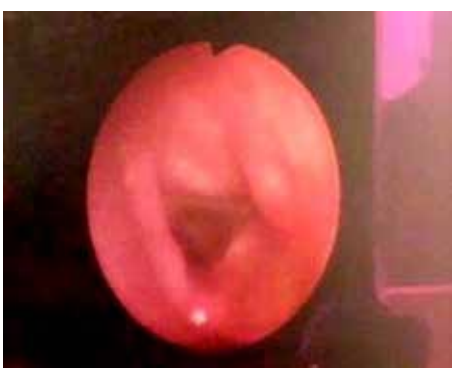

Figure 3 Fibre-Optic view of Glottic Opening
(to be included at the beginning of second paragraph of anaesthetic management)

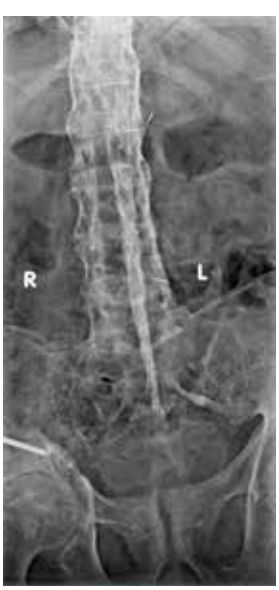

Figure 4 Lumbar Spine X Ray showing fused spinous processes with bamboo spine appearance
(to be inserted at the start (to the right) of the first paragraph of Discussion)

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INTRODUCTION

Ankylosing spondylitis [AS] is a chronic inflammatory disease involving articular processes of spine and peripheral joints seen commonly in males, with a high proportion positive for HLA B27. Widespread fibrous ossification involves joint cartilage and disc spaces. Formation of syndesmophytes is responsible for radiographic appearance of bamboo spine. Arthritis and ankyloses may develop in hips, shoulders, and costovertebral joints, with or without extra-articular complications. Organs affected by AS are heart, lungs, colon and eyes.[1] AS poses challenges to anaesthesiologist due to difficult airway, involvement of cardiovascular system, respiratory system and adverse effects of medicine used to treat the disease.

PREOPERATIVE EVALUATION

68 years old man, case of AS presented with severe pain in right hip with restriction of walking and daily activities for total hip replacement surgery. He was also on treatment for essential hypertension since six years. He was on long term native treatment in addition to analgesics for generalised body ache.

In view of neck deformity, he needed support of pillows. He was a known case of chronic laryngitis on treatment. During preanaesthetic evaluation, he had features of acute laryngitis like fever, hoarseness of voice, pain on swallowing and dry cough. He was on steroid therapy for chronic laryngitis. Past history revealed fixation of acetabular fracture under spinal anaesthesia ten months back. On physical examination, he had bent posture with severe flexion deformity in neck with fusion of spinous processes. Airway examination revealed severely restricted movement at eck with Mallampatti grading III. Blood investigations were within normal range. Serum Creatinine was 1.5 mg/dl. Cervical X-ray revealed fused vertebrae in extension. PFT revealed a restrictive pattern.

ANAESTHETIC MANAGEMENT

Anaesthetic plan was to perform case under G.A. with securing of definite airway by awake fibre-optic intubation.[2] Premedication was done with Tab. Diazepam 5 mg on previous night of surgery. He also received Tab. Pantoprazole (40 mg) + Domperidone (10 mg) and Tab. Amlodipine (10 mg) in the morning. On arrival in O.T. holding area 18G Vasofix was secured in right hand. Routine monitors including ECG, NIBP and SpO_2 were applied. After written informed consent was obtained, preparation for awake fibre-optic intubation was done. Inj. Glycopyrrolate 0.2 mg I.V., nebulisation with 4% Xylocaine, transtracheal block with 3 cc of 4% Xylocaine and nasal/oral spray with 10% Xylocaine were administered.

Awake fibre-optic intubation was done nasally. 7.5 mm I.D. cuffed flexo-metallic endotracheal tube was introduced. Bilateral air entry was checked and correct placement of endotracheal was confirmed with appropriate $EtCO_2$ tracing. Before proceeding to induce, we checked his ability to move limbs to rule out new-onset neurological deficits. In view of anticipated HPA suppression Inj. Hydrocortisone 100 mg I.V. was administered at induction. Anaesthesia was induced with Inj. Propofol 1 - 2 mg/kg I.V., analgesia was afforded with Inj. Fentanyl 1 - 2 μg/kg I.V. and skeletal muscle relaxation was achieved with Inj. Vecuronium 0.08 – 0.1 mg/kg I.V. Meticulous care was taken in appropriate positioning with neck support to avoid inadvertent nerve injuries. Intraoperative period was uneventful. At end of surgery when patient was fully awake, breathing adequately and obeying commands, neuromuscular block was reversed with Inj. Neostigmine 0.05 mg/kg I.V. and Inj. Glycopyrrolate 0.01 mg/kg I.V. and extubated. He was shifted to recovery area. Post operatively he was on I.V. Fentanyl infusion 0.5 to 1.0 μg/kg/hr. along with I.V. Paracetamol 1g TID I.V. Subsequently, he was shifted to high dependency unit for further management. In addition to analgesics, he was put on incentive spirometry and breathing exercises to aid lung function and prevent atelectasis. In view of his deranged serum creatinine, NSAIDs were avoided.

DISCUSSION

Ankylosing Spondylitis - an autoimmune spondyloarthropathy presents as a painful chronic arthritis – affecting spine and sacroiliac joints causing their union (Bamboo Spine). Clinically, AS presents with – peripheral arthropathy, enthesopathy, pain & morning stiffness in spine, ectopic bone formation in spine ligaments, osteoporosis, hyperkhyphotic deformity causing fractures, temporomandibular joint involvement causing restriction of mouth opening, arthritis of cricoarytenoid joint and vocal cord fixation. Extra-articular manifestations involve cardiovascular system – aortic stenosis, aortic insufficiency, conduction defects; respiratory system – restrictive lung disease, upper lobe fibrosis and ocular – uveitis.[1]

While conventional approach to AS consisted of surgical and medical approaches – Medical approach in particular has been main stay of treatment. AS has been classically addressed with NSAIDs, COX – 2 Inhibitors and disease modifying drugs such as Methotrexate & Sulfasalazine. Newer drugs such as Anti TNF – α agents namely Infliximab, Adalimumab & Etanercept [α and β] are slowly replacing conventional ones. These newer strategies are still under evaluation for their efficacy and adverse effects.

Some of the relevant implications of AS are limited mouth opening, cricoarytenoid arthritis, restricted neck extension, heart blocks, valvular defects, poor pulmonary function, existence or new emergence of neurological deficits due to airway manipulation. 2D ECHO and 12 lead ECG are vital to rule out conduction problems, valvular abnormalities and myocardial dysfunction. In view of thoracic spine involvement and fixation of costovertebral joints, it is essential to do PFTs [Pulmonary Function Tests], spine imaging and arterial blood gas analysis to assess severity of restrictive lung disease and to help in assessing need for postoperative ventilation.

Sonographic aided central neuraxial blockade in AS patients has been practised succesfully.[3] Further, central neuraxial blockade has been successfully attempted in a pregnant patient with AS presenting for emergency lower segment caesarean section.[4] Alternative approaches to conventional central neuraxial blockade like Taylor's approach have also been successfully attempted for AS patients presenting for Percutaneous Nephrolithotomy.[5] However, central neuraxial blockade is not without complications in the setting of AS. Spinal/ epidural hematomas following central neuraxial blockade in a patient of AS have been documented.[6, 7] Since, our patient had features of acute laryngitis on initial pre-anaesthetic evaluation, surgery was deferred for few weeks in order to optimise him. ENT consultation was sought and a course of antibiotics, decongestants and steam inhalation were prescribed. He was thus optimised before being taken up for surgery.

In view of multiple attempts at subarachnoid block during previous surgery, our patient refused spinal anaesthesia. Additionally, among other factors which weighed on our decision in favour of G.A. were – surgery in lateral position, inability to lie in lateral position for long time, generalized body ache and technical challenge in securing airway in middle of surgery.[8] Even though central neuraxial block provides excellent operating conditions with minimal airway manipulation, securing airway under emergent conditions intraoperatively would be technically challenging and may prove detrimental. Regional anaesthesia, while technically challenging, additionally presents with complications as intravascular injections, spinal/ epidural hematomas due to long term NSAIDS exposure and the possibility of a total spinal owing to narrowed spaces. However, G.A. in an AS patient needs thor-

ough pre-operative assessment and documentation of airway and neck movements etc.

Further, our patient had symptoms of reflux gastroesophageal disease of considerable duration. Chronic Laryngitis is usually an inevitable sequel of long standing Gastro-Esophageal Reflux Disease.[9, 10] This involvement of vocal cords is in addition to crico-arytenoiditis which is commonly seen in patients of AS. These changes cumulatively result in hoarseness of voice. Often, repeated ENT consultations, indirect laryngoscopy and other evaluation may become necessary. Accepted course of treatment involves institution of steroid therapy in addition to decongestants and steam inhalation. Hence the need for steroid supplementation intraoperatively. In preoperative preparation, it is vital to decrease gastric acidity (PPI inhibitors) and to promote emptying of stomach (prokinetic agents). While G.A. may not appear to be ideal in this background, in view of intraoperative lateral positioning, patient refusal for spinal anaesthesia and greater incidence of complications (epidural/spinal hematoma, intravascular injection etc.) associated with central neuraxial blockade in AS, it nevertheless qualifies as a safe and time tested alternative. Effective counselling preoperatively must be directed to dispel apprehension regarding possibility of worsening of hoarseness of voice post-operatively. Same focus of attention must be dedicated to effective mitigation of post-operative pain, such that pain ought not to interfere in achieving effective patient participation in early mobilisation, physiotherapy and ambulation.

CONCLUSION:

It is essential to identify and evaluate rare association between AS with GERD and its sequel - chronic laryngitis. Such an inflammation of larynx superimposed on arthritis of arytenoid joint secondary to AS presents as hoarseness of voice. While central neuraxial blockade may seem ideal, our management clearly illustrates the feasibility of G.A. in this scenario as well. Successful perioperative management of a case of AS coming for major surgery therefore calls for meticulous planning, good preoperative optimisation and skilled execution of proposed anaesthetic plan. In addition to above measures, pain control in postoperative period coupled with chest physiotherapy, breathing exercises and early mobilisation helps in minimising morbidity associated with this progressive and crippling disease.

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