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# Delayed Intervention in a Patient with Ankylosing Spondylitis may be Detrimental - A Case Report

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**Abstract:** ***Ankylosing spondylitis (AS) presents a unique challenge in perioperative management, particularly in patients with severe disease progression. This case report highlights the intricate difficulties faced by anesthesiologists while handling a 55 - year - old male with an advanced, immobilizing form of AS undergoing surgery for a right malleolus fracture. In my view, the complexities were not just technical but also deeply rooted in the patient's delayed medical intervention and deteriorating cardiopulmonary function. The case underscores how spinal rigidity, airway restrictions, and compromised pulmonary reserve can significantly complicate anesthesia administration, despite careful planning and multiple contingencies in place. It is evident that the absence of early cardiopulmonary assessments, exacerbated by patient discharge and readmission, led to a situation where intraoperative and postoperative respiratory distress became difficult to manage. The rapid decline in pulmonary function post - surgery, culminating in respiratory failure, reinforces the urgent need for standardized screening protocols in AS patients scheduled for surgery. This suggests that a more proactive approach, integrating high - resolution imaging and pulmonary function testing at the preoperative stage, could improve patient outcomes. Ultimately, while surgical advancements continue to evolve, this case demonstrates that timely intervention, multidisciplinary coordination, and individualized anesthetic strategies remain critical in ensuring the safety of AS patients undergoing surgery.***

**Keywords:** Ankylosing spondylitis, central neuraxial blockade, delayed intervention

## 1. Introduction

Ankylosing spondylitis is a chronic inflammatory disease of the axial skeleton and peripheral joints characterized by inflammation and fusion of the sacro - iliac joint and lumbar vertebrae with involvement of the thoracic and cervical spine. It is commonest in males with a high proportion carrying tissue type antigen HLA B27. [1, 2]

The manifestations include backache and stiffness with the possibilities of spinal cord compression, atlanto - axial subluxation or cervical fracture. Spinal and extradural anesthesia are usually technically difficult. Tracheal intubation may be difficult due to a stiff or rigid neck or temporo mandibular joint (TMJ) involvement. If thoracic or costovertebral joints are severely affected it results in restricted ventilation [3, 4, 5].

This case report details the problems faced by the anaesthesiologist in the perioperative field and delayed intervention in a case of severe Ankylosing Spondylitis is detrimental to the patient's overall post operative outcome.

## 2. Case Report

A 55 - year - old male, known case of severe Ankylosing Spondylitis, symptomatic for the last 20 years presented with right malleolus fracture. He had a classical bamboo spine with no mobility of cervical or thoraco - lumbar spine. Both the hip joints were totally fixed and he was unable to even sit for the last 4 years. Patient had dull pain in the lower back and gluteal region combined with stiffness of the lower back, especially in the morning and after periods of inactivity along with Hip pain, Joint pain, restricted neck mobility, generalized fatigue.

X - ray showed cervical spondylitis, kyphosis of the thoracolumbar spine, total ankylosis of spine along with ankylosis of both hip joints. Other investigations like haemogram, blood sugar and ECG were within normal limits.

Patient posted for ankle spanning external fixation. Dully preanesthetic check up was done. Cardiovascular and other systems showed no abnormalities. Due to personal issues the patient took discharge and OT has been delayed one week.

Patient took re - admission, followed by preanesthetic check up was done and patient was posted for surgery.

Patient developed infection at the site of injury and the plan of surgery changed to open reduction, internal fixation and debridement of the site of infection.

Airway was anticipated to be difficult because of the lack of any extension of cervical spine and mouth opening of about 2.5 cm. Patient was immobile for the past 7 days and his condition deteriorated. Patient had difficulty breathing , with 4 lit oxygen via simple face mask his saturation was around 92%. His pulse rate was 106 beats per minute and BP was 140/90 mm.

A difficult airway cart was kept ready along with a flexible fiberoptic bronchoscope.

Written informed consent was obtained for both general and regional anesthesia and NPO guidelines were followed. The

plan was to first attempt a spinal block, and in case of difficulty or failure, the alternative was a fiberoptic bronchoscope assisted awake intubation.

Positioning of the patient for the lumbar puncture was extremely difficult as there was no flexion at the hip joints. The patient was unable to sit and could only lie straight in lateral position without bending at the hip at all. Lumbar punctures were attempted at different spinal levels by paramedian approach by experienced anaesthesiologists, and successfully spinal anesthesia administration done with 0.5% bupivacaine heavy 1.8 ml with 20 mcg Fentanyl.

T10 Sensory block height checked with cold cotton touch. Bilateral bromage 1 for motor block established.

Intraoperative heart hate, blood pressure was with in normal range, saturation was between 92 to 96% with 4 lit per min oxygen via simple face mask.

Operation completed within 1 hour, Postoperative blood pressure, pulse pressure was within normal range. Patient's pulmonary reserve decreased and with oxygen support saturation was below 96%. Patient shifted to PACU Room with oxygen support. After observation for 2 hours, as the patient's condition didn't improve, he was shifted to ICU for proper monitoring and evaluation. Chest physiotherapy, nebulization, respiratory medicine opinion was advised.

ABG was done which showed, pH 7.31, Pco2 45, po2 150, Bicarbonate 12.2.

Patient was given IV fluids, antibiotics and oxygen (15 lit per minute via non rebreather mask).

After observation, saturation didn't improve and patient showed tachypnea, hence the patient was advised to put on Bi - PAP support.

After observation, patient's condition still didn't improved, there was persistent tachypnea with de - stress.

For prevention of untoward events prophylactically fiberoptic intubation done with inj Midazolam (1 hm) IV, inj Fentanyl (100 mcg), inj Glycopyrrolate (200 mcg), inj Succinylcholine (100 mg). Patient was put on Volume controlled mode with inj Midazolam infusion in titrated doses.

Patient's condition deteriorated further, ABG done which showed severe respiratory acidosis.

Unfortunately patient succumbed to death at midnight.

## 3. Discussion

Ankylosing spondylitis is a chronic inflammatory condition that usually affects young men. Cardiac dysfunction and pulmonary disease are well - known and commonly reported extra - articular manifestation, associated with ankylosing spondylitis (AS). Pulmonary involvement in ankylosing spondylitis is an extra - articular manifestation of the disease that was first described in 1941 in an article reviewing twenty cases of ankylosing spondylitis. [6, 7, 8]

At this time, there are no clear guidelines regarding a step - wise approach to screen these patients for cardiovascular or pulmonary complications. While some investigators clearly hint at the significance of detecting cardiopulmonary disease as early as possible via clinical exams, lab tests, EKGs, echocardiography, PFT, CT scan, there are some that remain inconclusive in their recommendations. In our patient, proper cardiopulmonary evaluation could not be done as the patient got discharged and admitted again when patient had to post for ot as emergency basis.

Baser et al. Their study shows HRCT changes were seen in (50%) of patients with moderate to severe AS patients [9]. Upper lobe fibrosis was identified in 1.3% of 2080 cases in a retrospective review in 1977 but recent studies using HRCT have shown a more extensive involvement of the lung. The use of HRCT for evaluation of whole lung involvement was first utilized by Casserly et al. in 1997 revealing lung involvement in (70%) ankylosing spondylitis patients meeting the New York criteria for ankylosing spondylitis [10, 11]. This uncontrolled study using HRCT to examine the lung parenchyma saw a far larger number of abnormalities on HRCT as compared with only (15.3%) abnormal plain X - rays in the same patients. Lung parenchymal abnormalities observed included interstitial lung disease, emphysema, apical fibrosis, mycetoma, and nonspecific interstitial lung disease [12, 13]. In our case unfortunately neither HRCT nor PFT could be done to assess cardiopulmonary status of the patient and accordingly optimization could not be processed. Post operative deterioration of the patient's condition showed an accelerated pattern and the patient could not survive.

Although there are limited options available for diagnosis and treatment of ankylosing spondylitis, early detection and treatment of this disease have been made possible by recent dramatic advances in diagnostic technologies and biological agents. Surgical treatment is sometimes used, most ankylosing spondylitis patients are treated with medications at non - orthopedic departments. Overall, orthopedic surgeons should make more effort to reduce patients' suffering from spinal and musculoskeletal pain and deformity via active diagnosis and treatment followed by surgical interventions.

## References

[1] Ankylosing spondylitis: Recent developments and anaesthetic implications June 2009 Anaesthesia 64 (5): 540 - 8 DOI: 10.1111/j.1365 - 2044.2008.05794. x PubMed
[2] Pahwa D, Chhabra A, Arora MK. Anaesthetic management of patients with ankylosing spondylitis. Trends in Anaesthesia and Critical Care.2013; 3 (1): 19 - 24.
[3] Dunham C, Kautz F. Sondylarthritis Ankylopoietica, A Review and Report of Twenty Cases. The American Journal of the Medical Sciences.1941; 201: 232–250. [Google Scholar]
[4] Baser S, Cubukcu S, Ozkurt S, Sabir N, Akdag B, Diri E. Pulmonary involvement starts in early stage ankylosing spondylitis. Scandinavian Journal of Rheumatology.2006; 35 (4): 325–327. [PubMed] [Google Scholar]

[5] Rosenow EC, Strimlan CV, Muhm JR, Ferguson RH. Pleuropulmonary manifestations of ankylosing spondylitis. Mayo Clinic Proceedings.1977; 52 (10): 641–649. [PubMed] [Google Scholar]
[6] Sampaio - Barros PD, Cerqueira EMFP, Rezende SM, et al. Pulmonary involvement in ankylosing spondylitis. Clinical Rheumatology.2007; 26 (2): 225–230. [PubMed] [Google Scholar]
[7] Casserly IP, Fenlon HM, Breatnach E, Sant SM. Lung findings on high - resolution computed tomography in idiopathic ankylosing spondylitis - correlation with clinical findings, pulmonary function testing and plain radiography. British Journal of Rheumatology.1997; 36 (6): 677–682. [PubMed] [Google Scholar]
[8] Turetschek K, Ebner W, Fleischmann D, et al. Early pulmonary involvement in ankylosing spondylitis: assessment with Thin - section CT. Clinical Radiology.2000; 33: 632–636. [PubMed] [Google Scholar]
[9] Kanathur N, Lee - Chiong T. Pulmonary Manifestations of Ankylosing Spondylitis. Clinics in Chest Medicine.2010; 31 (3): 547–554. [PubMed] [Google Scholar]
[10] Rumancik WM, Firooznia H, Davis MS, Jr., et al. Fibrobullous disease of the upper lobes: an extraskeletal manifestation of ankylosing spondylitis. Journal of Computed Tomography.1984; 8 (3): 225–229. [PubMed] [Google Scholar]
[11] Sil AK. Lung changes in ankylosing spondylitis. Chest.1972; 61 (4): 406–407. [PubMed] [Google Scholar]
[12] Davies D. Lung fibrosis in ankylosinlg spondylitis. Thorax.1972; 27 (2): p.262. [PMC free article] [PubMed] [Google Scholar]
[13] Scobie BA. The lungs in ankylosing spondylitis. British Medical Journal.1971; 4: 492–493. [Google Scholar]