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Anaesthetic challenges in a case of psoas abscess with discovertebral destruction at lumbar vertebral level with severe mitral regurgitation, severe aortic regurgitation and extrapulmonary tuberculosis

Sambit Dash[1], **Roshan Nisal**[2], **Vivek Chakole**[3], **Aruna Chandak**[4]

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Authors' Affiliation:
[1]Junior Resident, Department of Anesthesiology, Jawaharlal Nehru Medical College, Acharya Vinoba Bhave Rural Hospital, Datta Meghe Institute of Higher Education & Research (Deemed University), Wardha, Maharastra, India
[2]Assistant Professor, Department of Anesthesiology, Jawaharlal Nehru Medical College, Acharya Vinoba Bhave Rural Hospital, Datta Meghe Institute of Higher Education & Research (Deemed University), Wardha, Maharastra, India
[3]Professor and Head of Department of Anesthesiology, Jawaharlal Nehru Medical College, Acharya Vinoba Bhave Rural Hospital, Datta Meghe Institute of Higher Education & Research (Deemed University), Wardha, Maharastra, India
[4]Professor, Department of Anesthesiology, Jawaharlal Nehru Medical College, Acharya Vinoba Bhave Rural Hospital, Datta Meghe Institute of Higher Education & Research (Deemed University), Wardha, Maharastra, India

Contact List

Sambit Dash	sambitdashims@gmail.com
Roshan Nisal	dr.roshannisal@gmail.com
Vivek Chakole	drvivekchakole@rediffmail.com
Aruna Chandak	doctorchandak@gmail.com

ORCID List

Sambit Dash	0000-0003-2749-9721
Roshan Nisal	0000-0002-3003-8013
Aruna Chandak	0000-0001-5670-614X

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ABSTRACT

It is recommended to take a cautious approach when vertebral lesions are discovered in one or two vertebrae but there is no significant disruption in the vertebral stability. We describe a 38-year-old male with Pott's disease of the lumbar spine with extensive psoas abscesses. The patient also had multiple ground glass opacities in right lungs, along with severe aortic regurgitation and mitral regurgitation. The patient was started on anti-tubercular therapy. On the day of surgery, he was induced under general anaesthesia with central venous catheterization and arterial canulation for better haemodynamic management. The abscess was drained in a prone position followed by fixation of the spine. The anaesthetic management was a challenge because of multiple issues the patient had, be it the psoas abscess, extrapulmonary tuberculosis, bad lung mechanics and cardiac changes. An appropriate pre-operative assessment and judicious intraoperative planning and management could help us handle the case smoothly. Postoperatively the patient was extubated on the table and shifted to intensive care for observation and further management.

Keywords: Psoas Abscess, Pot's Spine, Mitral Regurgitation, Aortic Regurgitation, Extrapulmonary Tuberculosis.

1. INTRODUCTION

Vertebral TB is the most prevalent kind of skeletal tuberculosis. It often affects people in their first three decades of life, but it can strike anybody between the ages of 1 and 80 (Jain, 2016). A delay in the diagnosis and the beginning of

therapy might result in severe and permanent neurologic consequences, such as paraplegia. We present the case of a 38-year male who was diagnosed with Pott's disease of the lumbar spine and bilateral psoas abscesses. In addition to it, he had pulmonary infiltrates and cardiac anomalies like dilated left atrium and left ventricle, severe aortic regurgitation and mitral regurgitation. The patient was started on antituberculous therapy and drainage of the abscess was done along with fixation of the spine. Intraoperative extra caution was taken due to the associated cardiac anomalies. Postoperative patient had significant relief of symptoms. It was followed up by rehabilitation and physiotherapy.

2. CASE REPORT

Our patient, aged 38 years presented to casualty with complaint of swelling over the lumbar region in the midline since one month associated with pain radiating to bilateral lower limb (left > right) (Figure 1). The patient had difficulty in standing and walking. He also had complain of numbness and tingling sensation in the bilateral lower limb (left > right). The patient was referred to the neurosurgical department for further management. On detailed history taking, the patient gave a history of evening rise in temperature and loss of appetite (since one month) associated with weight loss. The patient gives a history of more than twenty kilograms of weight loss in the last one month. Acid-fast bacillus (AFB) test was performed and was found to be positive. Hence the patient was provisionally also diagnosed with extrapulmonary tuberculosis and anti-tubercular therapy (ATT) was started. MRI spine done revealed sacralization of L5 vertebrae, discovertebral destruction of L4-L5 level with pre/paravertebral and anterior epidural abscess causing severe stenosis of the central canal and lateral recess and neural foramina (Figure 2). The patient was planned for incision and drainage of abscess and fixation of L4 and L5 vertebral disc.

Figure 1 Image shows the large psoas abscess over the lumbar region, compressing the lumbar canal

During pre-anesthetic evaluation, the air entry was found to be reduced on the right side. Chest x-ray done revealed obliteration of right costophrenic angle and multiple lungs infiltrates. High-resolution computed tomography (HRCT) was advised which shows ground glass opacities and pulmonary tuberculosis was also suspected. Electrocardiogram (ECG) done was suggestive of left ventricular hypertrophy and 2d echocardiography was adviced which revealed an ejection fraction of 40% and severe aortic regurgitation and mitral regurgitation. The investigations done were found to be within normal limits. The airway of the patient was normal with a mouth opening of more than three fingers and mallampati class I. The patient was considered for anaesthesia under high risk. The relatives and patient were counselled about the high risk involved and the possibility of death on the table.

On the day of surgery after taking verbal and written high-risk consent patient was shifted to the Operating room. ASA-approved standard monitors were connected and general anaesthesia was induced with injection glycopyrolate 0.2 mg iv, injection midazolam 2 mg iv, injection thiopentone 180 mg iv, injection fentanyl 80 mcg iv and injection vecuronium 6 mg iv. Inj thiopentone

was used due to the unavailability of inj etomidate. An 8.0 mm flexo metallic armoured endotracheal tube was secured bougie guided with the help of laryngoscope and the tube was fixed at 22 cm at the angle of mouth. The patient was having difficulty lying in the supine position; hence bag and mask ventilation was done in a lateral position and the patient was turned supine before securing the tube.

Figure 2 MRI image of patient showing the abscess and compression at the lumbar vertebral level

Post induction a 7 fr triple lumen central venous catheter was taken and the right internal jugular vein was cannulated ultrasonography guided and the catheter was fixed and secured. A 20 G peripheral vascular catheter was taken and the right radial artery was cannulated for invasive blood pressure monitoring and repeated arterial blood gas (ABG) sampling. The patient was given a prone position, all the pressure points were carefully padded to avoid any nerve compression injury and the abdomen was kept free to avoid compression of the inferior vena cava and associated surgical field blood loss. The abscess was drained, followed by disc fixation at L4 and L5 levels (Figure 3, 4).

Figure 3 Image showing pus after incision at the psoas abscess

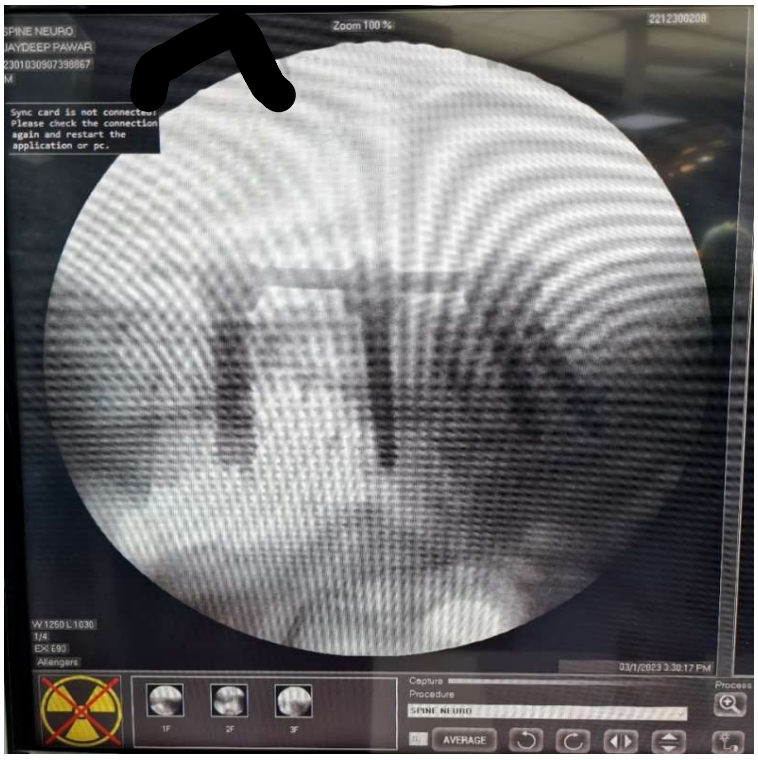

Figure 4 The C-arm image showing fixation of the spine at the level L4 and L5

The haemodynamic were closely monitored along with strict input and output charting. Fluid overload was avoided and analgesia with fentanyl was given at regular interval. Postoperatively, the patient was allowed to recover from anaesthesia and reversal agent (inj neostigmine with glycopyrrolate) was given. After fulfilling all the necessary extubation criteria, the patient was extubated on table and shifted to neurocritical care for further management. Postoperatively patient had relief of pain and he could lie in the supine position.

3. DISCUSSION

Due to the vague nature of the symptoms, medical practitioners are not always able to recognize the possibility of an early diagnosis of spinal tuberculosis. There have been reports that the usual amount of time that symptoms exist prior to a diagnosis is four months; however, this period of time can be much longer (Turgut, 2001). This is due to the fact that the initial and most common symptom, chronic back pain, has a presentation that is not particular to the disorder. There is a risk that patients will develop constitutional symptoms, such as a decrease in body weight, a lack of appetite and a rise in temperature in the evening. Patients may also experience these symptoms simultaneously.

The ramifications of an incorrect diagnosis of tuberculosis of the vertebrae might be catastrophic. When the spinal cord gets compressed, it can lead to a number of severe neurological problems, one of which is paraplegia. Pott's disease affects the lower thoracic and lumbar spine the majority of the time, although illnesses of the upper thoracic and cervical spine are more likely to lead to impairment. Tuberculosis of the spine affects the lower thoracic and lumbar spine the majority of the time. When the upper and middle thoracic spine is involved, there is an increased risk of neurological issues. This is because the spinal canal is at its narrowest between T3 and T10, which is the range of vertebrae in which it is located. Patients who have cervical spine tuberculosis may also show symptoms such as dysphagia or stridor. Neck pain and stiffness are two of the most prevalent symptoms of cervical spine TB.

Since the lumbar region of the spine was affected, our patient, who had an illness that had been present for a long time, did not suffer from any severe neurologic abnormalities other than numbness and tingling sensations in both lower limbs. There is a chance that cold abscesses may grow under situations that have been present for a substantial amount of time and these abscesses have the capacity to migrate across the intermuscular planes. His left psoas muscle had a large abscess, which passed through the left paraspinal muscles and into the subcutaneous plane.

It is very uncommon for radiographic abnormalities to not become apparent until a fairly late stage of Pott's sickness. This is one of the traits that distinguishes Pott's syndrome from other conditions. A larger psoas shadow, with or without calcification and lytic degradation of the anterior portion of the vertebral body are some of the anomalies associated with this condition. Other abnormalities include lytic destruction of the posterior portion of the vertebral body. In addition, there is lytic degradation of the posterior portion of the vertebral body. The presence of calcification is not necessary for these changes to take place; it may happen either way. There is a possibility that the intervertebral discs may sustain damage or be completely obliterated and the vertebral bodies will show varying degrees of injury as a result. Both of these possibilities are open to consideration. The magnetic resonance imaging of the spine is the tried-and-true approach for determining whether or not an infection is present in the disc space. Sharif et al., (1995) found that using this approach was particularly helpful in diagnosing extension into the soft tissues. As a result, it is the technique that is most often used. This imaging technique is also the one that is regarded to be the standard in the industry.

It is recommended to take a cautious approach when vertebral lesions are discovered in one or two vertebrae but there is no significant disruption in the vertebral stability. This approach includes percutaneous drainage of the abscesses in addition to anti tubercular medication (Dinc et al., 1996). This is due to the fact that this kind of lesion does not provide a significant danger to the vertebrae's capacity to maintain their structure. Pott disease requires surgical treatment if there is a loss in cognition, deformity of the spine associated with instability or discomfort, unresponsiveness to conventional treatments and a substantial paraspinal abscess.

Pott's disease is a condition that can damage the cervical spine. This is because the condition affects the cervical spine, which is why it manifests itself in this way. Jain and Dhammi, (2007) found that substantial abscess compression may produce dysphagia in addition to obstructing the upper airway.

Since our patient also had severe MR and AR, with an ejection fraction of 40%, the relative increase of heart rate and a decrease in afterload were two of the most important aims. Both slow heart rates, which may cause regurgitation due to their lengthy diastoles and increases in after load were avoided. As a result of the LV overfilling that occurs during bradycardia, which further distends the annulus, the patient's heart rate was maintained between 80 and 100 beats per minute. Acute increases in left ventricular afterload, such as those that might occur as a result of endotracheal intubation and surgical stimulation, were handled

quickly while avoiding severe myocardial depression. Because an excessive volume expansion may potentially make the regurgitation worse by increasing the size of the left ventricle, a specified amount of fluid was given to the patient in order to prevent this from happening.

4. CONCLUSION

In conclusion, Pott's spine should be taken into account as part of the differential diagnosis of persistent back pain in children. This is because Pott's spine is a condition that affects the lumbar spine. We have discussed a rare case where our patient suffered from large psoas abscess that was compressing the lumbar canal along with extrapulmonary tuberculosis of the spine and associated cardiac anomalies along with pulmonary infiltrates. A thorough preoperative evaluation, judicious intraoperative planning and preparations are needed in such cases for a successful post-operative outcome and favorable prognosis.

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Informed Consent

Informed Consent was obtained from the patient.

Author's contribution

All the authors contributed equally to the case report.

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Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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