

Case Report

STELLATE GANGLION BLOCK- AN EFFECTIVE MODE OF PAIN RELIEF IN A PATIENT OF PANCOAST TUMOUR OF LUNG—A CASE REPORT

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ABSTRACT

Superior sulcus carcinomas are rare and account for less than 3-5% of all lung carcinomas. However they present diagnostic and therapeutic challenges to thoracic oncologists, surgeons, radiotherapists and the pain specialists. A 76 year old male smoker, from rural West Bengal was admitted with haemoptysis and severe chest pain radiating to the right upper limb and adjacent structures. The patient was diagnosed as advanced Pancoast Tumour. Non-respectability and palliative treatment was planned and the patient was referred to our pain clinic. We report this unusual multimodal approach to relieving an intractable pain by combining oral drugs with Stellate ganglion block, a lesser practised interventional technique for pain relief in Pancoast tumour. Fluoroscopy guided right sided Stellate ganglion neurolysis was performed with 3% phenol. Complete pain relief was evident within 24 hours and continued for the next six months till his death.

Keywords: Pain Relief, Palliative Treatment, Pancoast Tumour, Stellate Ganglion Neurolysis

INTRODUCTION

According to WHO reports about 7 million die of cancer every year (World Health Organisation, 1996; Cleeland *et al.*, 1994). Pancoast or superior sulcus tumour is a rare variety of bronchogenic carcinoma accounting for around 5% of lung cases (Michael *et al.*, 2009).

The characteristic clinical symptoms includes the Horner's syndrome, severe pain in the shoulder radiating towards the axilla and scapula and along the ulnar distribution of upper arm with muscle atrophy, subclavian vein obstruction and edema of the upper limb resulting in Pancoast syndrome (Shen *et al.*, 2007; Ventafredda and deConno, 1996; Foroulis *et al.*, 2013; Detterbeck *et al.*, 2009; Menon and Swanopod, 2010).

The diagnosis constitutes of radiographic findings, CT guided FNA/B and MRI. Pancoast Tumours are T3 and T4 tumours and the prognosis depends on the T stage of the tumour and its location (Arcasoy and Jett, 1997).

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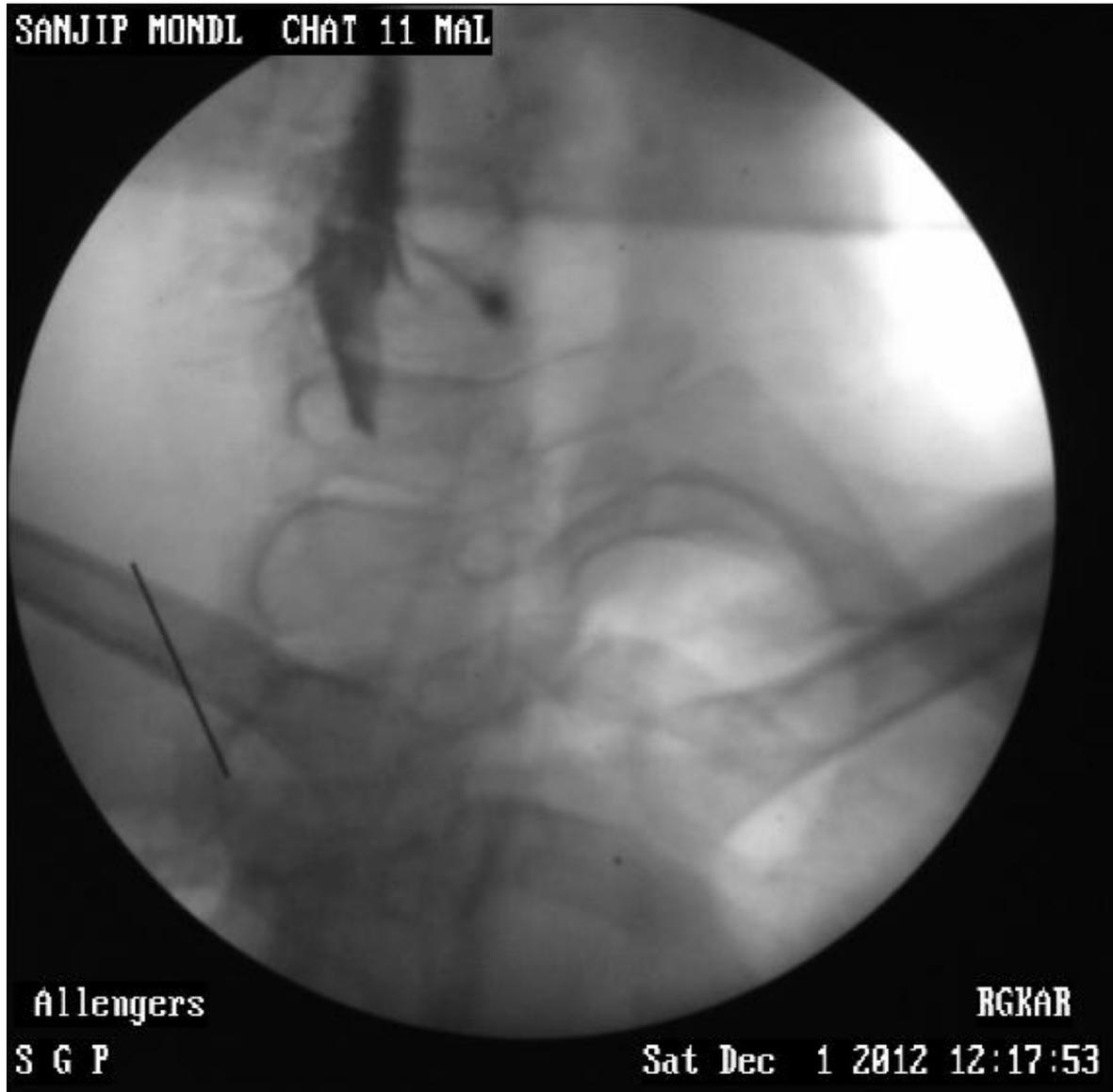
Our case was a 76 year old male, weighing 54 kgs, from rural West Bengal, India, with a low socio-economic background and a smoker for the last 35 years.

He was admitted to the chest department with intermittent haemoptysis and severe chest pain radiating to the right upper limb for the last 3 months. Routine investigation showed that besides mild anaemia, total count, differential count, sugar urea and creatinine were within normal limits with high ESR.

Chest X ray revealed a homogenous opacity of the right upper zone of lung. The CT scan of the chest revealed a Pancoast tumour of lung involving right apical lobe sulcus with bony destruction. The tumour was staged as T4N2 M1 and considered non-resectable.

A palliative treatment plan was undertaken and the patient was referred to our pain clinic for management of his intense pain in the right upper limb. Initial treatment was started with oral morphine sulphate (10 mg) QDS along with a laxative (duphalac-2tsf BD) and antiemetic (palonosetron 8mg). After 2 weeks of treatment, there was no significant improvement, rather the patient complained of an increase in pain.

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A multimodal approach for pain relief was taken and fluoroscopy guided Stellate ganglion neurolysis with oral drugs was planned. Keeping everything ready for resuscitation and emergency management, patient was placed supine with neck extended. Local skin puncture site was infiltrated 1% 1ml lignocaine. Diagnostic block was performed with 1%, 2 ml of preservative free lignocaine at junction of transverse process and body of C7 vertebra. 2ml Iohexol (Omnipaque) was used and paratracheal spread of the dye revealed proper needle position. When diagnostic block was positive 8ml of 2% aqueous phenol was injected at the respective site. The neurolytic drug was injected exercising caution like initial test dose, frequent aspiration and slow injection. Evidence of sympathetic block was evidenced by facial anhidrosis along with engorgement of the veins of the hand and forearm.

Resolution of pain indicated effective sympathetic block. Complications like pneumothorax, seizure, total spinal anaesthesia, respiratory distress were absent. Complete pain relief was evident within 24 hrs. The patient was then put on extended release pregabalin (75mg) given at 7pm everyday along with a combination of codeine- 15mg and diclofenac combination twice daily with 40mg of pantoprazole. The patient was followed-up every month for the next 6 months till his death which was reported by his son. He was pain free for these months.

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DISCUSSION

Pain control has recently developed as an essential part of comprehensive palliative care in cancer patients. Some studies have shown a direct correlation between good pain control and the length of survival of the patient (Zech *et al.*, 1995; Shen *et al.*, 2007).

The treatment of Pancoast tumour is difficult because of its close proximity subclavian vessels lymphatic system, brachial plexus, spine 2nd and 3rd ribs, the Stellate ganglion and the sympathetic nervous system (Zech *et al.*, 1995).

Diagnosis is by a combination of clinical symptoms with the radiographic findings of a mass or opacity in the apex of the lung infiltrating the 1st and/or 2nd ribs (Zech *et al.*, 1995; Ventafridda and deConno, 1996) and a tissue diagnosis via CT-guided FNA/B, bronchoscopy, or thoracoscopy or Magnetic resonance imaging of the thoracic inlet. In our patient diagnosis was arrived at with the help of clinical, radiographic, MRI and CT guided FNA/B findings (Zech *et al.*, 1995; Ventafridda and deConno, 1996).

Superior sulcus carcinomas (Pancoast tumours) are by their definition locally advanced T3 or in case of vertebral or vascular invasion, T4 tumors (Zech *et al.*, 1995; Shen *et al.*, 2007; Ventafridda and deConno, 1996). In our patient presence of loco-regional and extensive invasion with distant multiple nodes led to T4N2M1 staging as per guidelines of International Association for the Study of Lung Cancer, 2009 and determined nonresectable (Ventafridda and deConno, 1996; Foroulis *et al.*, 2013). Induction chemo-radiotherapy is the initial standard of care for Pancoast tumor along with palliative care and pain management. Prognosis of these tumours depends mainly on T stage of tumour, and response to preoperative chemo-radiotherapy.

Similar to the findings of Christophoros N. Foroulis, Paul Zarogoulidis, Kaid Darwiche our patient had the characteristic severe pain located in the ipsilateral shoulder, axilla, anterior chest wall along the distribution of the ulnar nerve (C8-T1 nerve roots) which aggravated over time (Foroulis *et al.*, 2013).

Over the past century, many chemical and physical ablative techniques have been developed with the goal of disrupting transmission of pain signals along the neural pathways by chemical neurolysis with alcohol, phenol and glycerol (Shen *et al.*, 2007) producing Wallerian degeneration resulting in nociceptive block. Clinicians now favour injection of phenol as it is less neurotoxic (Arcasoy and Jett, 1997; Shen *et al.*, 2007). Phenol at a concentration of 2 to 3 % spares motor function. As the fibres regenerate the action is not permanent (Menon and Swanopod, 2010). We have used 2% phenol with no complications.

The Stellate ganglion block is a frequently administered block for upper extremity procedures though not so frequently used in pain relief for Pancoast tumour. In the classic technique fluoroscopic imaging is done with the patient placed in supine position with neck slightly extended (Arcasoy and Jett, 1997; Shen *et al.*, 2007). The Chassaignac tubercle is identified at C6 and the needle enters at this site. Some clinicians use Raczs technique at the C7 level for its improved safety margin as has been used by us in our case (Arcasoy and Jett, 1997; Shen *et al.*, 2007). The patient was pain free till his death due to disease about 6 months after the procedure.

The mainstay of the treatment of pain associated with Pancoast's tumor syndrome is the opioid analgesics (Foroulis *et al.*, 2013; Detterbeck *et al.*, 2009). These drugs can be used in combination with nonsteroidal anti-inflammatory drugs and the adjuvant analgesics as has been used in our case.

Conclusion

Adequate, effective and long term pain control is of paramount importance especially in cancer patients. Our treatment modality of combining Stellate ganglion neurolysis with oral pregabalin, mild opioid and nonsteroidal analgesic combination avoids the long term complications of strong narcotic use and is an effective approach for end of life palliative pain control in a patient with Pancoast tumour.

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