

Extensor Pollicis Longus Paralysis following Thoracoscopic Sympathectomy

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Abstract

Thoracoscopic sympathectomy is an acceptable form of treatment for palmar hyperhidrosis. Many authors have reported favourable results. Complications range from pneumo-haemothorax, Horner's syndrome, compensatory hyperhidrosis and bleeding. Plas et al reported 2.7% of the procedures had complications requiring intervention and 9.7% had non-interventive complications. There have been isolated reports of other rare complications including false aneurysm of intercostal artery, inferior brachialplexus injury and abnormal suntanning.

We report an unusual case of isolated extensor pollicis longus paralysis after a thoracoscopic sympathectomy for palmar hyperhidrosis, in a fit young male. Such complications have not been previously reported. We recognise that such isolated nerve injury is uncommon.

Ann Acad Med Singapore 1999; 28:282-3

Key words: Endoscopic sympathectomy, Isolated muscle paralysis

Case Report

A 24-year-old man was referred for hyperhidrosis of more than 15 years duration. It affected both hands, feet and axilla. Sweat frequently dripped from his hands and disturbed his work considerably as he needed to handle tools, equipment and electronic devices. He had no other past medical history. Physical examination was essentially unremarkable. There was no neurological deficit involving the upper limbs.

The patient underwent a standard bilateral thoracoscopic sympathectomy of T2 and T3 in the lateral position using a single portal technique. The entry was made in the third intercostal space along the anterior axillary line. The approach, lung deflation and reinflation, was uneventful. Dense adhesions were seen, which suggested that the patient had previous infection or pleurisy. Bilaterally, the T2 and T3 sympathetic chain and nerves were clearly visualised and dissected out and coagulated with a monopolar probe. There was a subsequent rise in distal palmar temperature and blood flow measured using laser Doppler flowmetry confirming successful sympathectomy bilaterally. The patient had good relief of his palmar and axillary hyperhidrosis.

However the patient presented with weakness of his right thumb. There was no paraesthesia or numbness. Power of the fingers was normal. Specifically, there was total paralysis of the extensor pollicis longus (EPL) of the

right thumb. Tenodesis effect showed intact EPL tendon. The adductors and flexors of the thumb were intact. No paraesthesia was elicited over the radial nerve distribution. Examination of the right elbow revealed no tenderness along the posterior interosseous nerve. The EMG of the radial nerve showed no gross motor or sensory deficit. However EMG study of the involved muscles was unsuccessful due to their small size and it was covered by other extensor muscles. An open procedure to identify the muscle for EMG study was not advisable. The patient was initially being treated with extensor dynamic splint to keep the joints supple. However at 6 months follow-up, he was not keen for tendon transfer.

Discussion

The advent of thoracoscopic sympathectomy brings new hope to patients suffering from palmar hyperhidrosis. These patients endure embarrassment and often, professional handicap. It was first performed in the 1960s. Success rates were reported between 95% and 100%.

Plas et al¹ reviewed the complications of this procedure in 412 patients. They found complications in 12.4%, but only 2.7% required intervention. Lung complications were commonest especially pneumothorax. Others include cutaneous emphysema (2%), pleural effusion (1.1%) and segmental atelectasis (0.4%).

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Failure and recurrence are also rare. Drott and Claes² cited a rate of <2% of primary failure and <2% of recurrent symptoms. Vascular injuries including bleeding from an intercostal vessel and false aneurysms³ are probably anecdotal. Even rare complications such as abnormal suntanning have been reported by Whiteley et al.⁴

Of interest are neurological complications. The commonest is Horner's syndrome, seen in 1% to 2% of patients.^{1,2} Interestingly, Lange⁵ reported a case of inferior brachial plexus injury during thoracoscopic sympathectomy in 1995. As this was the first done in the unit, he attributed it to technical reasons. Anatomical proximity could account for the above.

Regarding the radial nerve paralysis, Sturzenegger et al⁶ found that 55% have a traumatic cause such as fractures of the humerus and radius. The radial nerve was less commonly affected than median and ulnar nerves in non-traumatic lesions. Twenty-two per cent of non-traumatic cases were in the upper arm, usually due to pressure at the axilla (Saturday night palsy). He did not find any palsy secondary to sympathectomy.

Even more unusual are isolated nerve palsies to muscle groups. Isolated EPL palsy has not been reported following sympathectomy. Divelbiss et al⁷ reported a case of isolated denervation of the left EPL in a young boy after multiple lacerations on the left forearm secondary to a dog-bite.

The cause of isolated EPL paralysis after sympathectomy in this case was unknown. Direct trauma to the brachial plexus was unlikely as the levels coagulated were at T2 & T3, nowhere near the EPL roots. Furthermore, radial innervation of EPL arose from the posterior trunk which is above the inferior trunk. It could possibly be due to an aberrant nerve anatomy along the sympathetic trunk. As the other side was not affected, it was likely a unilateral abnormal anatomy.

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