Splanchnic Nerve Neurolysis: Double Access for Abdominal Cancer Pain

Dear Editor

The sympathetic innervation of the abdominal viscera is formed from the ventral branches of levels T5–T12. From these branches, the greater, lesser and least splanchnic nerves are formed, to finally synapse at the coeliac plexus. These branches innervate the distal oesophagus, transverse colon, pancreas, liver, adrenal glands and ureters and regulate the abdominal blood supply.[1] This explains the efficacy of splanchnic nerve block in patients with upper abdomen and lower oesophageal neoplasms. Plancarte *et al* reported a significant improvement in pain levels and reduction of painkillers intake in 109 patients with upper abdomen and lower oesophageal neoplasms, administering 8–10 mL of 10% phenol in the retrocrural and retroaortic space, using a single-needle, posterior transdiscal approach, guided by CT scan.[2] Over time, several techniques for splanchnic nerve block have been described, either guided by CT scan or fluoroscopy, administering volumes even greater than 10 mL of neurolytic agent. Singler performed a CT-guided transcrural technique, achieving excellent results with the administration of 10–20 mL of 50% alcohol on each side.[3]

Kommuru *et al* in their study carried out in 31 cadavers, observed that in 37% of cases, the origin of the greater splanchnic nerve comes from the preganglionic fibres of vertebral levels T7–T9. In 63% of cases, the formation of the lesser splanchnic nerve came from the contribution of the preganglionic fibres of the vertebral levels T10–T11. Finally, in 70.83%, the least splanchnic nerve had the contribution of the preganglionic fibres of the vertebral level T11.[4] Later, these results were confirmed with the study of 36 cadavers by Naidoo *et al*.[5]

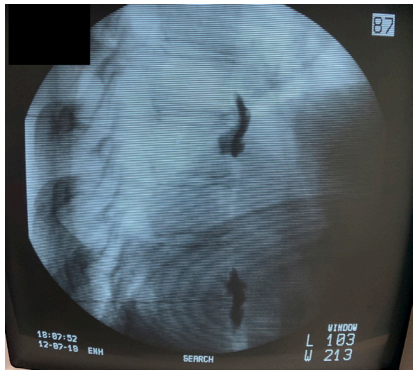

Figure 1 Lateral projection of the contrast medium spread in T8–T9 and T11–T12, with the permission of the patient.

These results may be particularly beneficial in providing effective analgesia to the patient, making a selective approach, with a lower volume of neurolytic agent administration, reducing the risk of complications described as paraplegia after splanchnic block associated with the spread of the neurolytic agent to the posterior aspect of the aorta at the level of the segmental arteries, as well as retrograde dissemination to neuronal structures.[6]

We describe a 63-year-old man who presented to our pain management department with upper abdominal pain (Visual Analogue Scale 9/10) due to pancreatic cancer, the patient was intolerant to opioid medications due to drowsiness and nausea. We performed a double access single-needle transdiscal splanchnic neurolysis fluoroscope guided with 10% phenol, 5 mL each access. Immediately after the procedure, the patient reported a 60% improvement in pain, 2 weeks later an 80% improvement. No complications or neurological deficits were reported.

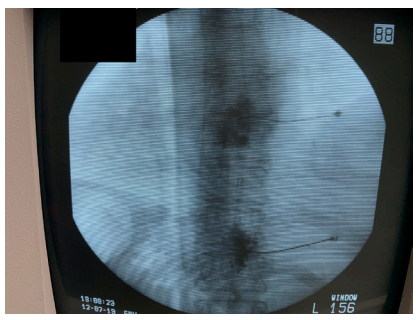

Figure 2 AP projection of the contrast medium spread in T8–T9 and T11–T12, with the permission of the patient.

TECHNIQUE DESCRIPTION

With the patient in prone position, guided by fluoroscope, an anteroposterior projection is obtained to identify the T8–T9 intervertebral space. The approach is approximately 4–6 cm lateral to the midline; we used a Quincke needle 20G, 15 cm with a curved tip through a 16G introducer needle to avoid contact with the skin. Once the tip of the needle was in the centre of the disc in anteroposterior projection and in the anterior part of the disc in lateral projection, we advanced the needle through the anterior longitudinal ligament until obtaining a loss of resistance, which indicates that the tip of the needle is in the anterior aspect of the vertebral body. Contrast medium is administered, assessing its distribution pattern under live fluoroscopy in lateral projection. The same technique is performed at T11–T12 level. The volume of phenol administrated is based on both patterns of distribution of the contrast medium administered at each level, approximately 4–5 mL (figures 1 and 2). Our proposal is to use two accesses, T8–T9 and T11–T12, which according to cadaver studies are where most of the splanchnic nerves are located and with the intention of using less volume than described previously, being more selective and reducing the risk of dispersion of the neurolytic agent and consequently of neurological complications and have a better chance of success by covering more fibres of splanchnic nerves.

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