

# Chronic Pain Management - Upper Visceral Malignancies Coeliac Plexus Block with CT Scanning - A Case Report

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## Summary

Coeliac plexus block has been described more than seventy years ago and is widely used for chronic pain management in upper visceral malignancies. The technique described here is a posterior approach using CT scan guidance with absolute ethyl alcohol. A case illustration of a patient with carcinoma of pancreas managed with coeliac plexus block for pain control is presented.

**Key Words:** Coeliac plexus block, Upper visceral malignancies, Chronic pain management, CT scan guidance.

## Introduction

Coeliac plexus block as we know it today has been described more than 70 years ago. Kappis<sup>1</sup> originally described the coeliac plexus block which later was promoted by Moore<sup>2</sup>. Coeliac plexus block can be made under direct vision by the surgeon during laparotomy (with guidance from the anaesthetist regarding the neurolytic block). The use of CT scan to help needle placement was later introduced by Haaga et al.<sup>3</sup>

## Case Illustration

A 60 years old Indian male presented with three months history of abdominal pain. There was loss of appetite and loss of weight over the past three months. Subsequently a mass was noticed on the right hypochondrium which progressively increased in size. There was no previous history of hepatitis infection and patient did not take any unusual drugs. Patient also had

obstructive airway disease. He was also a chronic smoker and alcohol drinker.

On examination, he appeared well, there were jaundice and fever. The right supraclavicular lymph nodes were palpable. Abdominal examination revealed hepatomegaly and ascites. The initial diagnosis was hepatoma with a differential diagnosis of carcinoma of the pancreas.

Ultrasound examination indicated that the intrahepatic duct, common bile duct and pancreatic ducts were dilated. There was a mass at the pancreatic head measuring 4.5 by 4.5 cm. The impression was that of carcinoma head of pancreas.

ERCP done showed that the pancreatic duct was dilated. There was a stricture at the pancreatic head. Also a tight stricture at the lower one third of the common bile duct. The ampulla and the surrounding

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areas were inflamed. A 6.5 cm 10 F. stent was inserted. Unfortunately a biopsy was difficult to obtain during this procedure.

OGDS was done and the oesophagus, stomach and duodenum were normal. A biopsy of the ampullary region was taken which showed no evidence of malignancy.

CT scan showed that there was an inhomogenous mass at the pancreatic head 6 cm x 5 cm. A stent was noted which provided decompression of the intrahepatic ducts. The pancreatic duct was dilated. There were no focal lesions in the liver. There were no significant lymph nodes enlargement. The impression was that of carcinoma head of pancreas.

Laparotomy was done with an attempt to remove the tumour, however this proved impossible. Findings at operation included a large tumour mass circumferential, measuring 11cm x 13 cm posterior to the stomach and the lesser omentum which was mobile retroperitoneally. There were multiple small nodules at the right lobe of the liver at segment V. Some para-aortic nodes were noted at the origin of the coeliac axis.

A palliative procedure was done which included a gastrojejunostomy, cholecystojejunostomy and jejunojejunostomy.

About three weeks after surgery patient was referred for chronic pain management to the pain unit as he was not doing well on opioids alone. Bilateral coeliac plexus block with absolute alcohol 20 ml each side was then performed. Several hours after block, blood pressure dropped to 70/30 mmHg, but responded to i/v ephedrine 6 mg and i/v Haemaccel.

On the next day patient still had hypotension, blood pressure was 107/60 mmHg. He also developed several episodes of diarrhoea which was treated with diphenoxylate. He was dehydrated and required intravenous therapy. However the pain was much improved. He however deteriorated gradually with increasing ascites, poor appetite and worsening emaciation. Pain occasionally worsen which needed intermittent doses of opioids. He finally succumbed to

the malignancy about two weeks after the coeliac plexus block was done.

## Discussion

The Coeliac plexus lies at the level of the first lumbar vertebra. It is composed essentially of two ganglia which are interconnected, located in front of the crura of the diaphragm and aorta at the origin of the Coeliac artery. The sympathetic rami of T5 - T12 run a long course on the lateral aspect of the vertebral bodies to form the greater, lesser, and lowest splanchnic nerves. The Coeliac plexus also receive parasympathetic fibres in the form of the Coeliac branch of the left vagus nerve.

Therapeutically, Coeliac plexus block can be employed in the treatment of intractable visceral pain states such as chronic pancreatic pain or visceral malignancies.

The block is performed with collaboration with the radiological department and the block itself done in the radiological suite. The patient is placed prone on a radiolucent table. Intravenous drip is checked, usually this would have been set-up in the ward. Mild sedation is given before insertion of the needle. Needle placement is guided by CT scan. Initially limited axial cuts of the upper abdomen (upper T 12 - lower L 1) with 5 mm cuts are taken. Intravenous contrast is injected to help identify the vascular elements. Then the slice of



**Fig. 1: CT scan of coeliac plexus showing correct placement of needles**

interest which shows the anatomy well will be selected. Measurements are then taken, the aim is to focus at the periaortic region. Angulation and depth of the needle is measured. Area on the patient is marked for insertion of the needle with the help of the gentry. A 22 G Chiba needle with length of 15 cm is used. Repeat CT scan is then performed to confirm accurate placement of the needle tips (Figure 1). At this juncture a small amount of air is injected to help further confirm correct placement by demonstrating dispersal of the injected air around the space at the coeliac plexus.

Initially lignocaine 2% 10 ml is injected, which is followed by 20 ml of absolute ethyl alcohol. This is repeated on the other side.

Hypotension is common with coeliac plexus block. This can be avoided if a fluid load with Hartmann's solution is given prior to injection. Pleuritic pain may occur but is self-limiting, lasting 2-3 days. Increased gut motility may produce frequent stools during the first week after block. Neurovascular or intrathecal injection is possible, but can always be avoided if an image intensifier and contrast -containing solution used.

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## References

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