

**GASTROPATHIES IN ASSOCIATION
WITH PORTAL HYPERTENSION**

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INTRODUCTION AND AIM OF THE WORK

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INTRODUCTION

Gastric mucosal lesions are common in portal hypertension. They are an important cause of blood loss which may be slow and insidious causing anaemia (Wenger et al. 1970), or sudden and severe, causing massive and occasionally fatal haemorrhage (Sarfeh et al., 1982).

The use of sclerotherapy for bleeding oesophageal varices combined with regular endoscopic follow up has provided a unique opportunity to study the progression of changes occurring in the gastric mucosa.

Because portal hypertension is a common finding in patients with liver cirrhosis, schistosomiasis and many other diseases, together with upper gastrointestinal bleeding occurring in these patients, this study reports the incidence and natural history of gastric mucosal lesions in a series of 20 patients with portal hypertension of various etiologies.

REVIEW OF LITERATURE

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ANATOMY OF THE PORTAL CIRCULATION

The portal vein collects blood from the splanchnic area-which includes the abdominal portion of the digestive tube, the pancreas and the spleen - and transports it to the liver. The arteries supplying this blood are the non-hepatic branches of the celiac axis and the superior and inferior mesenteric arteries.

Last, (1973) stated that although there are anatomical variations in various branches of the portal system, the portal vein itself usually begins at the level of second lumbar vertebra (posterior to the head of pancreas) at the union of the splenic and superior mesenteric veins. It then ascends behind the bile duct and hepatic artery where it receives a number of small veins. It ends at the porta hepatis by dividing into two branches, one to each of the corresponding lobes of the liver. The right branch is usually joined by the cystic vein before its entrance into the liver. The left branch gives branches to the caudate and quadrate lobes and is also connected to a fibrous cord, the ligamentum teres which is a remnant of obliterated left umbilical vein (it runs in the free margin of the falciform ligament).

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The small paraumbilical veins run together with ligamentum teres and connect the portal vein with veins around the umbilicus. These may be prominent in cases of portal hypertension. A second fibrous cord; the ligamentum venosum, is a vestige of the obliterated ductus venosus and connects the inferior vena cava with the left portal vein. (Davies and Coupland 1967).

The portal vein is about 6 to 8 cm long and 1.2 cm in diameter and contains no valves. The valveless portal vein is an afferent nutrient vessel of the liver and in this sense it acts as an arterial channel. (Reynolds 1969).

Tributaries of the portal vein are the splenic vein, the superior mesenteric, the left gastric (coronary vein), the right gastric, paraumbilical veins and the cystic vein. (Fig.1).

The most troublesome tributary of the portal vein is the left gastric vein (the coronary vein). It runs along the lesser curvature of the stomach where it receives some oesophageal veins. In portal hypertension, these enlarge to form varices that may rupture to produce haemorrhage. (Gardner et al., 1975).

The splenic vein begins by five or six tributaries issuing from the spleen. Such tributaries are then joined by the short gastric vessels to form a single vein. It then ascends to the right (across the posterior abdominal wall) where it receives numerous short tributaries from the pancreas. It usually receives the superior mesenteric vein at a right angle to form the portal vein. (Warwick and Williams, 1975).

The superior mesenteric vein is very variable having from ten to twenty five tributaries. It collects blood from the small intestine, caecum, and the ascending and transverse parts of the colon. It usually begins in the right iliac fossa by the union of its numerous tributaries and ascends in the mesentery until the neck of pancreas to meet the splenic vein. (Gardner et al., 1975).

The inferior mesenteric vein drains blood from the rectum, the sigmoid and the descending part of the colon. Starting as the superior rectal vein in the rectum, it continues upwards and ends in the medial third of splenic vein but may sometimes enter the junction of the splenic and superior mesenteric veins. (Romanes 1969).

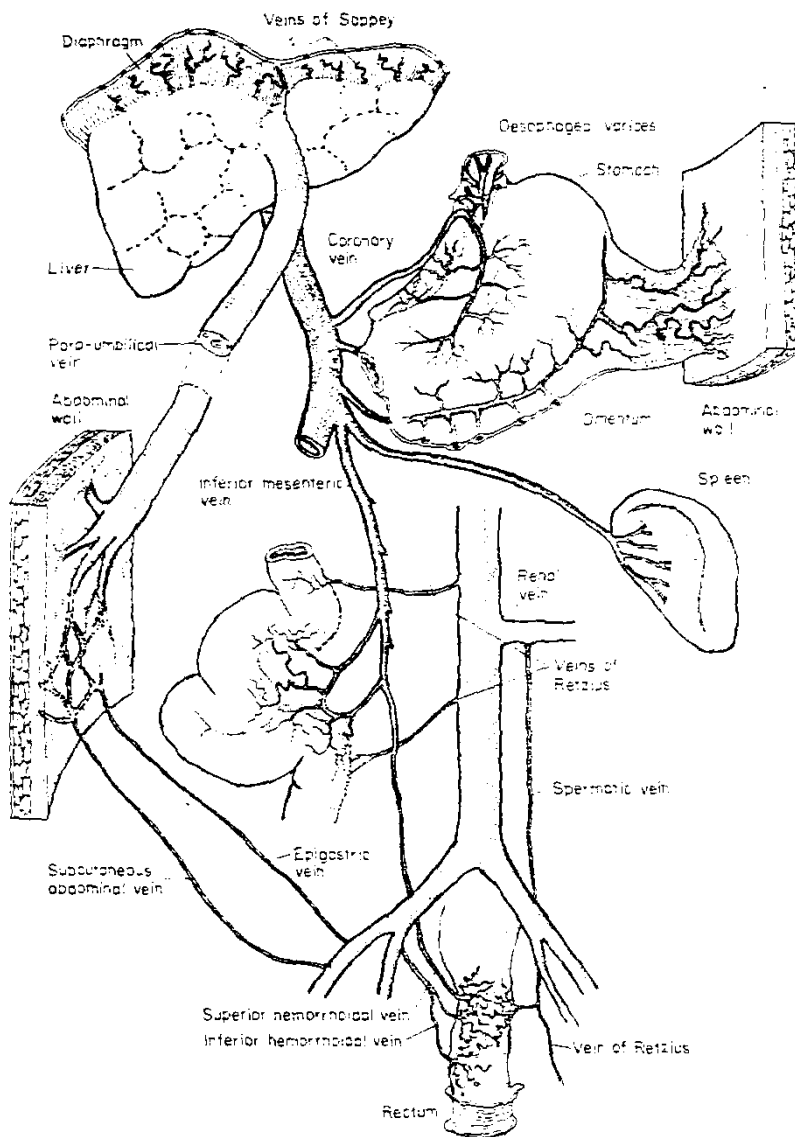


Figure 1: Anatomy of the portal circulation and sites of portal-systemic collaterals in portal hypertension. (Sherlock S. 1981).

Collaterals of The Portal Vein: (Fig.1)

Sherlock (1981) stated that when the portal circulation is obstructed inside or outside the liver, a remarkable collateral circulation develops to carry the portal blood into the systemic veins.

Reynolds (1982) described that the natural sites for the development of portal collaterals are areas where veins draining into the portal stream are in juxtaposition to veins draining into the caval system. The major locations for this are:

Submucosa of the Oesophagus. Anastomoses form between the tributaries of the coronary vein (portal drainage) and azygos vein (superior vena caval drainage). This results in submucosal varices of the lower oesophagus and upper part of the stomach. Also, collaterals from the spleen to the stomach contribute to this anastomotic plexus.

Submucosa of the Rectum. The lower portion of the rectum normally drains into the inferior vena cava through the inferior hemorrhoidal veins, whereas the upper portion of the rectum drains into the portal system through the middle and superior hemorrhoidal veins. Anastomoses between these venous channels result in hemorrhoids.

Anterior Abdominal Wall. The umbilical vein remnant of the foetal circulation in the falciform ligament normally carries little or no blood but remains probe-patent. In portal hypertension, it can serve as an anastomotic channel between the main left portal vein and the normotensive epigastric veins of the anterior abdominal wall that drain ultimately into the superior and inferior vena cavae.

Parietal Peritoneum. Connections between the portal and caval systems form in the posterior abdominal wall and between the capsule of the liver and diaphragm.

Left Renal Vein. Large connections sometimes form between the splenic vein or other neighbouring portal tributaries and the left renal vein. On rare occasions, these are nearly as large as a surgical splenorenal shunt.

Porto-Pulmonary Venous Anastomosis.(PPVA) Sano et al. (1982) concluded that PPVA is not a rare occurrence. They detected collateral channels from the para-oesophageal or mediastinal veins to the left pulmonary veins leading into the left atrium. This is in addition to the usual porto-systemic shunting to the right side of the heart. This could explain the

reports of Ellman et al. (1981) who implicated PPVA as the cause of systemic arterial embolism from , Gelfoam particles injected into the veins feeding bleeding varices.