Cruveilhier–Baumgarten syndrome
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Section: Abdominal imaging
Area of Interest: Abdomen
Procedure: Diagnostic procedure
Technique: CT
Case Type: Anatomy and Functional Imaging
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Patient: 54 years, male

Clinical History:
A 54-year-old male patient with alcoholic liver disease presented with progressive abdominal discomfort for 2 months. On clinical examination, the abdomen was tense and distended. No palpable thrill could be elicited; however, loud venous hum was heard on auscultation in the peri-and right infraumbilical region.

Imaging Findings:
Contrast-enhanced CT abdomen revealed cirrhotic shrunken liver with features of portal hypertension in the form of dilated spleno-portal axis, intra-abdominal collaterals and splenomegaly. The umbilical portion of left portal vein was dilated, with giant collateral seen in ligamentum teres and periumbilical region, representing recanalised periumbilical veins. This dilated periumbilical collaterals were seen draining into the left common femoral vein via the superficial inferior epigastric vein.

In the light of clinical details and imaging findings the diagnosis of Cruveilhier-Baumgarten syndrome was suggested.

Discussion:
Cruveilhier-Baumgarten syndrome refers to recanalisation of the paraumbilical vein with prominent periumbilical (portosystemic) collaterals manifesting as abdominal wall bruit (the Cruveilhier-Baumgarten bruit) and a palpable thrill in patients with cirrhosis or portal hypertension [1-4].

The paraumbilical vein is a relatively common venous collateral pathway in patients with cirrhosis. The paraumbilical vein originates from the umbilical portion of the left portal vein, courses along the falciform ligament, frequently extending toward the umbilicus [3, 4]. In the vast majority of patients the paraumbilical flow returns to the systemic circulation via one of the two inferior epigastric veins. Less commonly, the paraumbilical flow returns to the systemic circulation cranially via the substernal or internal mammary veins and the intercostal and azygos veins.

The portosystemic collateralisation between the paraumbilical vein, the periumbilical veins of the anterior abdominal wall and the superficial and deep epigastric veins comprises of, what is known as, Cruveilhier-Baumgarten syndrome [1-7]. This syndrome was first described by Pégot in 1833, and then by Jean Cruveilhier in 1835 and Paul Clemens von Baumgarten in 1908 [1]. The Cruveilhier-Baumgarten sign refers to the venous hum heard over the umbilicus/ or a caput medusae (tortuous abdominal wall varices), that arises from hepatofugal flow through the recanalised umbilical vein.

On CT, Cruveilhier-Baumgarten syndrome is characterised by the presence of a dilated tortuous paraumbilical vein
in patients with cirrhosis, which arises from the left portal vein branch, traverses along the falciform ligament towards the umbilicus, forming a network of dilated periumbilical veins giving a ‘caput medusae’ appearance [1, 4]. The blood eventually drains into the systemic circulation via the superficial and deep epigastric veins reaching the external iliac or femoral vein. Multidetector computed tomography (MDCT) is the imaging modality of choice which delineates this postosystemic collateral pathway with exceptional precision [2, 3, 4]. The clinical relevance of this syndrome lies in the fact that unintended iatrogenic injury of these vessels can cause potentially life threatening haemorrhage during abdominal surgeries or paracentesis [4].

Cruveilhier-Baumgarten disease (or Pégot-Cruveilhier-Baumgarten), in contrast, is a term reserved for congenital failure of the closure of umbilical veins causing distension of paraumbilical veins, with little or no evidence of liver disease found on imaging/and liver biopsy [1, 7].

**Differential Diagnosis List:** Cruveilhier–Baumgarten syndrome, Cruveilhier-Baumgarten disease, Abdominal wall vascular malformation

**Final Diagnosis:** Cruveilhier–Baumgarten syndrome

**References:**


Description: Coronal CT image reveals shrunken liver with dilated portal vein, splenomegaly & multiple gastro/lienorenal collaterals. Also seen is a tortuous collateral channel draining into right femoral vein. Origin: Ankur Arora, Radiodiagnosis, ILBS Hospital, New Delhi, India.
**Description:** A giant recanalised para-umbilical vein with dilated peri-umbilical collaterals. These are draining into the right femoral vein. **Origin:** Ankur Arora, Radiodiagnosis, ILBS Hospital, New Delhi, India.