



ANOMALY IN HPB TREE- MOYNIHAN'S HUMP : A CASE REPORT

Hepatobiliary Surgery

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ABSTRACT

We report the occurrence of a rare case of an anomaly in HPB tree- Moynihan's hump in NAMO MERI and SVBCH Hospital, Silvassa, India. Our patient was a middle aged woman, who presented with pain in abdomen since 5 months in our outpatient department. The data were documented through history, clinical examination, ultrasound examination and intra operative findings. The case was found to be a rare anomaly- Moynihan's hump. This case report emphasizes the attrition and the variation of normal human anatomy. Although the condition is extremely rare, it is a potential danger in its massive form, if timely diagnosis and management not done. Intra operative awareness of structural anatomy is a must before proceeding for such a case.

KEYWORDS

INTRODUCTION

Tortuous course of right hepatic artery, also known as Moynihan's hump or caterpillar hump is a rare but important anomaly to be recognized to prevent intraoperative vascular and biliary injuries during surgical procedures involving the liver and biliary apparatus. The present study is intended to understand the anatomy of the Moynihan's hump of right hepatic artery emphasizing its relevance in current surgical practice.

Case Report

A 48 years old female came to General Surgery OPD with chief complaints of pain in abdomen since 5 months. The patient was apparently alright 5 months back when she experienced pain in abdomen, dull aching, initially located to right upper abdomen to then whole of upper abdomen, sudden in onset, increased on eating oily food and partly relieved with medications. The patient also complained of subsequent bloating with pain. The patient had no significant past history and had insignificant family history. The patient had adequate sleep, had normal bowel and bladder habits.

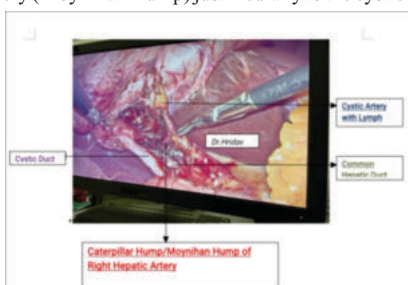
On examination, the patient was vitally stable. On per abdomen examination, the patient had some tenderness over right hypochondriac region with no guarding.

Rest of the abdomen was normal with no obvious abnormality. Ultrasound of the patient showed multiple gall stones of variable size, with the largest of 20mm size.

Upon anesthetic clearance, the patient was posted for Laparoscopic Cholecystectomy.

A standard laparoscopic ports setup for cholecystectomy was made and the Calots Triangle was identified.

Meticulous dissection of Callots triangle revealed a tortuous right hepatic artery (Moynihan Hump) just medially to the cystic artery.



Careful dissection of cystic duct from Right Hepatic Artery was done followed by clipping of cystic artery and cystic duct. The gall bladder was dissected from gall bladder fossa and was sent for HPE. Drain was kept in Morrisons pouch. The Patient was eventually discharged on 2nd postoperative day with drain removal and was followed up consecutively every week. At present, the patient is doing well.

DISCUSSION

Since the introduction of open gallbladder surgery until Laparoscopic Cholecystectomy, surgeons have been very interested in the anatomy of the hepatobiliary triangle to perform a safe surgical procedure. Anatomical variations within and around the hepatobiliary triangle (biliary tree and cystic artery) are common, accounting for 20–50% in patients⁽¹⁾.

The incidence of caterpillar hump or Moynihan's hump and Right Hepatic Artery varies from approximately 1.3 to 13.3%⁽²⁾. The etiology is still not entirely clear, however, there are some theories described in the literature. Taylor CR; theorized that both the elongation and tortuosity of the artery could be attributed to architectural distortion of the intrahepatic branches of the hepatic artery in patients with cirrhosis. However, no clinical or statistical correlation has been demonstrated for this hypothesis⁽³⁾. Benson and Page⁽⁴⁾ proposed the suggestive explanation that the abnormality could be produced by traction during Laparoscopic Cholecystectomy. However, the incidence of Right Hepatic Artery with caterpillar hump in both live operated and cadaver patients (7% vs. 6.9%) is unlikely due to surgical maneuvers. Another hypothesis can be explained on the basis of embryonic development⁽⁵⁾⁽⁶⁾. According to Miyaki⁽⁷⁾ the embryonic liver is innervated by three segmental arteries arising from the dorsal aorta. The branch of the middle segmental artery becomes a proper hepatic artery arising from the common hepatic artery and the other two become two accessory hepatic arteries arising from the left gastric and superior mesenteric arteries. Given that the artery arising from the left gastric artery may persist in 25% of cases and the other persists in 18.3%, it could be postulated that partial or complete persistence of the arterial supply of the fetal liver could sustain the caterpillar hump of the right liver.

The tortuous Right Hepatic Artery called the Moynihan's hump or caterpillar hump, can be found anteriorly or posteriorly to the common hepatic duct. The former being the most common. The hump may have a single or double loop. The Cystic Artery, when arising from the proximal loop, is long and crosses the tortuous Right Hepatic Artery to reach the gallbladder. When the Cystic Artery arises from a distal loop, it is very short, this variant being the most common⁽⁸⁾. In our case, the hump had a single loop with a short Cystic Artery arising from its convexity. Because of the proximity of the loop to the gallbladder, the Right Hepatic Artery may be confused with the Cystic Artery and

ligated. Injury to the Right Hepatic Artery can have several consequences. First, if completely ligated, it results in ischemic necrosis of the right lobe of the liver. Second, partial injury can subsequently lead to hepatic artery pseudoaneurysm, which can result in excessive and potentially fatal bleeding. The third and most important is that any vascular injury leading to hemorrhage during laparoscopic surgery may obscure the surgeon's field of vision, and in an attempt to remedy the situation, blind coagulation or clipping may occur, causing injury and/or disruption to the bile duct. This is the most feared complication of Laparoscopic Cholecystectomy and also one of the most frequent causes of lawsuits against surgeons.

Therefore, for safe surgery, we must follow the safety rules discussed and emphasized over and over again by Strasberg; the most important of which is that only two and only two structures entering the gallbladder should be visualized before any cutting or ligation is performed⁽⁹⁾. Also, a thorough knowledge of the anatomy and its variations is the key to identifying the structures, since in a way, the surgeon's eyes cannot recognize what the mind ignores. Finally, in the presence of complex cases in which we are faced with severe adhesions or frozen triangles, a call for help or a diagnostic certainty tool, such as a diagnostic cholangiography must be kept in mind. Remember that patient safety comes first⁽¹⁰⁾.

CONCLUSION

The caterpillar hump or Moynihan's hump, as a transoperative finding, is a reminder of how variant the anatomy of the biliary tree can be. In this particular case of the Right Hepatic Artery, which is subject to multiple anatomical variations in its course that could increase the risk of inadvertent ligation or injury during Laparoscopic Cholecystectomy. Therefore, the recognition of possible variations in the anatomical structures of the Calot's triangle during surgical procedures is of utmost importance to avoid intraoperative and postoperative complications during Laparoscopic Cholecystectomy. Remember that each human body is unique and each cholecystectomy is a new procedure.

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