STUDY OF HARTMANN'S POUCH IN SOUTH KERALITESLeena A. B.¹**HOW TO CITE THIS ARTICLE:**

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ABSTRACT: CONTEXT: Hartmann's pouch is an out-pouching of the wall of the gallbladder, at the junction of neck of gallbladder and cystic duct. It may be a site where gall stone impacts, which leads to mucocele of gallbladder. So its identification is useful in delineating biliary anatomy while performing cholecystectomy. **AIM:** was to identify the presence of Hartmann's pouch in human gallbladder and other anomalies in people of south Kerala. **SETTINGS AND DESIGN:** department of anatomy, department of forensic medicine, department of pathology in government medical college Trivandrum. Study design was cross sectional type. **METHODS AND MATERIALS:** The study was done in cadavers and autopsies in government medical college Trivandrum. Fetal specimens were also included. Formalin fixed gallbladder was washed with plain tap water to remove excess formalin and was kept on metallic tray. On observation Hartmann's pouch in gallbladder was detected and noted. In present study 230 cadaver's gallbladder were observed carefully in the neck region for Hartmann's pouch. **RESULTS:** The Hartmann's pouch was detected in ten cases out of 230 (4.3%). One of the pouches had a calculi also. **CONCLUSIONS:** Further studies to find out the gross anatomy and histological study of Hartmann's pouch is recommended.

KEYWORDS: Hartmann, pouch, gallbladder, calculi.

INTRODUCTION: The gallbladder is divided into fundus, body and neck or infundibulum.^[1] Sometimes the neck of gallbladder at its junction with the body, has a small pouch (Hartmann's pouch) projecting from its posteromedial wall towards the superior part of the duodenum. Although relatively common, its presence is now generally accepted to be due to pathological changes. This is not a feature of normal gallbladder and is usually associated with a pathological condition; it may be the site of impaction of gallstone.

This pouch is variable in size but a large Hartmann's pouch may obscure the cystic duct and the Calot's triangle. This may be the result of plain enlargement or due to adherence to the cystic duct or bile duct. When a gallstone lodges in this area, the gallbladder cannot empty normally and contractions of the gallbladder wall produce severe pain leading to mucocele of gallbladder. So its identification is useful in delineating biliary anatomy while performing cholecystectomy.

An unusual presentation of gall stones within Hartmann's pouch causes obstruction of common hepatic duct by extrinsic compression, a phenomenon known as Mirizzi syndrome. Its clinical presentation is intermittent or persistent jaundice. This study was aimed to find the prevalence of Hartmann's pouch. Small cystic duct can get completely hidden and traction on the gallbladder can lead to the bile duct looking like the cystic duct. This can create major problems during cholecystectomy.

MATERIALS AND METHODS: SETTING:

1. Department of Anatomy.
2. Department of Forensic Medicine.
3. Department of Pathology.

Duration of study 2 years:

Sample Size:

$$\text{THIS IS BASED ON THE FORMULA } N = \frac{1.96^2 \times P \times Q}{L_2}$$

The least anomaly in gallbladder is 37% according to the study of Johnston E V and Anson BJ,^[2] 1952 in "Variations in the formation and vascular relations of bile ducts".

$$L = 37 \times 20 / 100 = 7.4$$

$$n = \frac{1.96^2 \times 37 \times 63}{7.4 \times 7.4} \sim 180$$

The fetuses with anomaly was 10 out of 15 as per the study "Extrahepatic biliary Passages: an anatomical study in full term human fetuses" by Girijakumari K^[3] in 1990. This comes to 66%.

$$L = 66 \times 20 / 100.$$

$$n = \frac{1.96^2 \times 66 \times 34}{13.2 \times 13.2} \sim 50$$

SPECIMENS:

Cadaveric specimens – 20.

Autopsy specimens – 160.

Fetal specimens – 50.

METHODOLOGY: The cadavers which were preserved in formalin were used. Fresh specimens were obtained enbloc from the autopsies in mortuary and dissected. Fetal specimens were obtained during fetal autopsies conducted by pathology department. Formalin fixed gallbladder was washed with plain tap water to remove excess formalin and was kept on metallic tray and observed carefully in the Neck region for Hartmann's pouch.

Incision:

1. Midline incision from xiphisternum to pubic symphysis.
2. Transverse incision from xiphisternum to midaxillary line.
3. Transverse incision from pubic symphysis to anterior superior iliac spine.

Abdominal wall was reflected. Peritoneum is incised similarly and abdominal cavity exposed. Greater omentum was identified. Stomach was removed by double ligatures. Careful dissection of hepatobiliary region was carried out. Right gastric artery was traced to the proper hepatic artery and vein to porta hepatis. Proper hepatic artery and its branches to the portahepatis were exposed. Cystic duct was traced from the neck of the gall bladder to its junction with common hepatic duct to form

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common bile duct. During autopsies and in fetuses the liver, omentum containing bile duct, blood vessels, duodenum, pancreas were removed enbloc and studied. Formalin fixed gallbladder was washed with plain tap water to remove excess formalin and kept on metallic tray. On observation Hartmann's pouch in gallbladder was detected and noted.

INCLUSION CRITERIA:

1. Cadavers in the department of Anatomy.
2. Fetuses autopsied in the department of Pathology.
3. Autopsies done in the department of Forensic Medicine.

EXCLUSION CRITERIA:

1. Unknown bodies.
2. Death due to poisoning.
3. Cases with injuries to liver.
4. Diseases of liver and biliary system.

RESULTS: In our study, large Hartmann's pouch was observed in ten cases (4.3%). A 74 year old female with Hartmann's pouch had calculi (10%) as well.

DISCUSSION: Hartmann's pouch is named after Henri Albert Hartmann.^[4] (1860) who first described it in 49 cases obtained after laparoscopic or open cholecystectomy and 49 cases obtained after postmortem examination. Van Eijck F C, Van Veen R N, Kleinrensink G J, Lange J F 2007.^[5] studied the incidence of gallstones in Hartmann's pouch. In reviewing the literature one finds numerous reported cases of abnormalities of the biliary tract. Many years ago Sir Arthur Keith stressed the fact that in the biliary region, "Variation is rampant". Although disease of the gallbladder is not uncommon, anomalies of this organ are relatively rare. Van Eijck.^[5] et al examined 98 gallbladders; 49 obtained after laparoscopic or open cholecystectomy and 49 obtained after postmortem examination, among the gallbladders. Hartmann's pouch was present in 51 out of 98 (52%), which was much higher than that in the present study. Similarly a lesser frequency of calculi (10%) in Hartmann's pouch was found in the present study in contrast to 65% cases reported by Van Eijck, F C et al. Abnormalities of the Hartmann's pouch were detected on contrast-enhanced radiography in 16 (19%) of the 84 patients by Ravi Cherukuri, Marc S. Levine et al 1998.^[6]

Contrast-enhanced radiography of the Hartmann's pouch in their study revealed abnormalities of the pouch in 19% of patients, including leaks or fistulas, diversion colitis, adhesions, strictures, and recurrent tumor. K. Lakshmi Kumari, P. V. S. S. Vijaya Babu 2014.^[7] studied Hartmann's pouch in people of North coastal Andhra Pradesh and found 4.9% of Hartmann's pouch in total specimens and 60% of pouches were associated with gall stones. Knowledge of relevant anatomy is important for the safe execution of any operative procedure, specifically in laparoscopic cholecystectomy. It has been recognized since long that misinterpretation of normal anatomy as well as presence of anatomical variations contribute to the

Occurrence of major post-operative complications especially biliary injuries. Injuries in turn can cause significant morbidity and occasionally even mortality. They are also one of the commonest causes of litigation against abdominal surgeons in the developed world. Several investigators have

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reported cases of primary rectal carcinoma developing in a Hartmann's pouch one or more years after surgery for benign disease.^[8,9] It has been postulated that chronic inflammation of the pouch in patients with diversion colitis increases the risk of malignant degeneration. Apart from this, association of Hartmann's pouch with gall stones is one of the pathological conditions. So further study of Hartmann's pouch is recommended.

KEYPOINTS:

1. Identification of Hartmann's pouch is useful in delineating biliary anatomy while performing cholecystectomy.
2. Knowledge of relevant anatomy is important for the safe execution of any operative procedure specifically in laparoscopic cholecystectomy.

Fig. 1

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