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CLINICOPATHOLOGICAL STUDY OF XANTHOGRANULOMATOUS CHOLECYSTITIS

Pathology

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ABSTRACT

Objectives: To study the correlation of Xanthogranulomatous cholecystitis (XGC) with the clinicoradiological, intraoperative findings and its comparison with histopathological features. **Material and methods:** A clinicopathological retrospective study was done in 21 histopathologically diagnosed cases of XGC which were identified from 938 cholecystectomies during the period Jan 2018 to June 2019 at our hospital. The clinical data such as age, gender, presenting complaints, examination findings, radiological data, and surgical records along with histopathological findings was collected. The histopathological gross and microscopy findings were taken out from the departmental reporting registers and further categorized into various sub-headings to carefully include all the associated features in the given case**. Results:** Most common clinical presentation was right upper quadrant / epigastric pain (100%) followed by nausea and vomiting (66.66%). On USG examination gall stone was present in all cases. Focal or diffuse wall thickening was observed in 12 patients (57.14%). Intraoperatively, gall bladder adhesions (76%) and gall bladder thickening (57.14%) were common findings. On gross finding there was diffuse thickening of wall (>3mm), focal thickening and tumorous mass in 13 (61.9%), 7(33.33%) and 2 (9.52%) cases respectively. Mixed chronic inflammatory and fibrosis (42.85%) were common microscopic findings.
Conclusion: Histopathology is the gold standard for diagnosis, intra-operative diagnosis (cytology and frozen section) may be of invaluable help in such cases for proper planned management of the patient

KEYWORDS

Xanthogranulomatous Cholecystitis, Gall Bladder Carcinoma, Clinicopathological

INTRODUCTION

Xanthogranulomatous cholecystitis (XGC) is a rare benign inflammatory disease of the gallbladder that may be misdiagnosed as carcinoma of the gallbladder on imaging (1, 2). The association between cholelithiasis and gall bladder carcinoma (GBC) is well-known, and the former occurs in over 70% of the patients with GBC and occurrence of GBC with XGC has also been reported in 9–12% of lesions (3). Incidence of Xanthogranulomatous cholecystitis (XGC) is reported to range from 0.7% to 13.2% (4). Characterized by acute/chronic inflammation of the gall bladder with a focal/diffuse accumulation of fibrous tissue and lipid laden macrophages in the gall bladder wall. XGC although benign may extend into the adjacent structures, making this practically indistinguishable from advanced carcinoma of the gall bladder. Therefore, it is of great importance to make a correct diagnosis of XGC in order to avoid surgical interventions including hepatic resection. In this study we aim to study the correlation of XGC with the clinicoradiological, intraoperative findings and its comparison with histopathological features.

MATERIALS AND METHODS

A clinicopathological retrospective study was done in 21 histopatho logically diagnosed cases of XGC which were identified from 938 cholecystectomies during the period Jan 2018 to June 2019 at our hospital. The clinical data such as age, gender, presenting complaints, examination findings and radiological data provided in the retrieved data sheets from patient's files were taken out and tabulated. Per-operative details regarding the type of procedure, observations and complications were recorded. The hospital stay was also recorded in each case. The histopathological gross and microscopy findings were taken out from the departmental reporting registers and further categorized into various subheadings to carefully include all the associated features in the given case. The clinical features, intraoperative findings were recorded and co-related with histopath ological (gross and microscopy) features. A diagnosis of XGC was made on the basis of standard histopathological criteria. Case records were then revaluated for clinical finding, imaging result and details of surgical procedure.

RESULTS

Twenty one patients with HPE findings of Xanthogranulomatous Cholecystitis were taken. 76% were females & 24% were males (M: F ratio = 1:3), with a mean age of 51.52 years (range: 20-68).

Most common clinical presentation was right upper quadrant / epigastric pain (100%) followed by nausea and vomiting (66.66%), fever (52.3%), right hypochondrial tenderness (42.8%), jaundice (9.52%) and gall bladder mass (9.52%) respectively.

All patients underwent USG examination. Gall stone was present in all cases. Focal or diffuse wall thickening was observed in 12 patients (57.14%), gall bladder mass in 2 patients (9.52%) and gall bladder perforation in 1 patient (4.76%) were other USG findings.

Intraoperatively, gall bladder adhesions were present in 16 patients (76%), gall bladder thickening in 12 patients (57.14%), and empyema gall bladder in 2 patients (9.52%), Mucocele in 1 patient (4.76%) and gall bladder mass in 1 patient (4.76%).

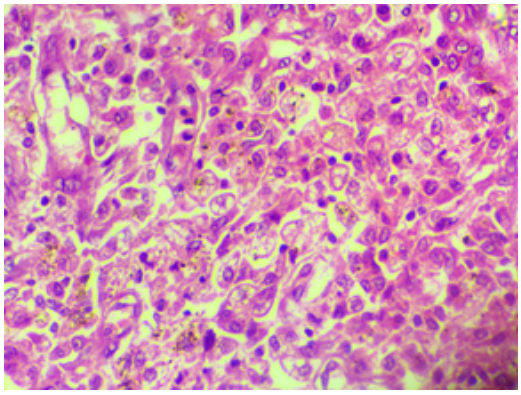

Figure 1- High power view shows foamy macrophages, lymphocytes and few plasma cells spread diffusely in the stroma

Table 1. Microscopic findings in Xanthogranulomatous cholecystitis cases

Microscopic findings	Number of cases
Fibrosis	9 (42.85%)
Mixed chronic inflammatory	9 (42.85%)
Pyloric metaplasia	2 (9.52%)
Giant cell/granuloma	3 (14.2%)
Cholesterol cleft	1 (4.76%)
Calcification & ceroid deposition	2 (9.52%)
Adenocarcinoma	1 (4.76%)

Histopathological examination of 21 cases was done (Figure 1 and 2). On gross finding there was diffuse thickening of wall (>3mm), focal thickening and tumorous mass in 13 (61.9%), 7(33.33%) and 2 (9.52%) cases respectively. Additional microscopic findings are summarized in table 1.14 patients (66.6%) were operated laparoscopically & 7 patients (33.3%) undergone open cholecystectomy. Average duration of hospitalization was 3.3 days for laparoscopic cholecystectomy & 5.3days for open cholecystectomy.

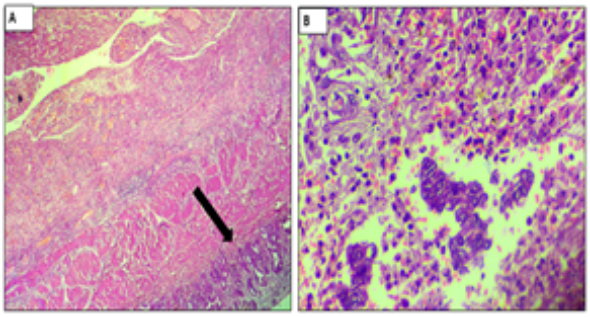

Figure 2-(A) Diffuse wall thickening in a case of XGC with dysplasia (arrow) of overlying epithelium. (B) Shows both malignant glands in a stroma full of xanthoma cells and lymphocytes.

DISCUSSION

Incidence of XGC disease is found in 1.3% of patients with cholecystectomy in Europe, and more than 9% in India [4]. It was first described by Christensen and Ishak in 1970. XGC mostly affects middle aged women and old persons between 60 and 70 years. In our study, mean age was 51 years which was around 10-15 years less than the other study [5, 6]. This suggests that age must be one of the significant factors in the development of the XGC. XGC is predominantly seen in females in our study (M: F=1:3) similar to previous studies [7]. Although signs or symptoms are not specific for XGC, the most common complaint are right upper quadrant and epigastric pain and the clinical presentation is generally acute or chronic cholecystitis [8,9,10]. These finding are in concordance with our observations in the present study. The same literature series demonstrates jaundice as another common clinical presentation, which also same in our study (9.52%). The pathogenesis of XGC is uncertain, the current hypothesis suggest that XGC may benign as an acute inflammation of the GB and obstruction. Bile and occasional mucin may enter the stroma of the GB through subsequently ruptured Rokitansky-Aschoff (R-A) sinuses or a mucosal ulceration secondary to cholelithiasis. Bile degradation within histiocytes as a cause of the xanthoma cells has been proposed [11].

Takahashi et al [12] and Goodman and Ishaks have suggested that the important event is the extravasation of bile into gall bladder wall, either from ruptured R-A sinuses or focal mucosal ulceration.

In most cases, foci of XGC is similar to that proposed by Parson et al for Xanthogranulomatous pyelonephritis [13].

USG finding in XGC included the presence of gall stones and moderate to marked thickening of gall bladder wall (focal or diffuse). Gall stone were present in 85-100% patients in different series and obstruction to cystic duct was noted in 80% of the cases [14, 15].In our study, gall stone were present in 76.19% (16 patient). Three groups of researchers have reported a hypo-echoic nodule or band (sonolucent halo) in the gall bladder wall, to be the most characteristic finding in the disease. Occasionally, a complex, poorly defined mass mimicking malignancy is visualized on USG [16] and can also detect complications like gall bladder perforation with abscess formation and gas in the biliary tree due to fistula. FNAC has been reported to play an important role in making the pre-operative diagnosis of adenocarcinoma and XGC. The sensitivity of detecting malignancy was 80% when adenocarcinoma was associated with XGC [17].

At operation, XGC may give the appearance of an advanced gall bladder due to the marked thickening of the GB wall and local destructive spread of the inflammation. Hence, an intra operative frozen-section biopsy is often recommended [18, 19, 20]. In our study, there was a single case showing co-existent adenocarcinoma (4.76%).
A positive association between XGC and carcinoma of the GB has been reported, though not well elucidated. Inflammatory phenomenon with metaplasia-dysplasia-neoplasia sequence have been implicated [21, 22]. Operative findings commonly reveal the presence of adhesions to surrounding tissue , thick walled gall bladder often with fistulous communication , gall bladder perforation and abscess formation, resulting in technical difficulties and prolonged operative time. Average duration of stay in our study was increased to 4.71 days. Laparoscopic cholecystectomy was attempted in 14 of our patients, of which only 7 (33.33%) could be completed laparoscopically and 7 had to be converted to an open procedure. This was due to dense adhesion of gall bladder to the surrounding structures.

CONCLUSIONS

XGC is a rare disease. Its mode of presentation is non-specific and mostly similar to gall stone disease and usually incidentally detected intra-operatively or radiologically as GB thickening. It is often confused with malignancy. It is a cause of GB thickening and increased hospital stay and morbidity to the patient. XGC in the laparoscopic era is still a challenging disease and a high conversion rate to open surgery is anticipated. Though, histopathology is the gold standard for diagnosis, intra-operative diagnosis (cytology and frozen section) may be of invaluable help in such cases for proper planned management of the patient.

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