



Case Report

Pyloric gland adenoma of gallbladder with squamoid morules in pediatric age

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ABSTRACT

Case Report: 7 year old symptomatic girl was diagnosed with gall bladder polyp on ultrasonography and MRCP (magnetic resonance cholangiopancreatography). Laparoscopic cholecystectomy was performed and patient was discharged on 2nd post operative day without any complications. Histopathology and Immunohistochemistry revealed pyloric gland adenoma with squamoid morules.

Discussion: Gall bladder polyps are seen in 5% of the adult population around the world but rarely seen in children. Polyps have the potential to convert into malignancy and hence early diagnosis and differentiation is necessary.

Most of the patients with gall bladder adenomas are adult females. Majority of the adenomas (91%) are single. Squamoid morules was found in 28% and columnar oxyphil cells in 2% of these adenomas. High-grade dysplasia/carcinoma in situ was seen in 27% of them and low-grade dysplasia in 15%. However, only 1% invasive adenocarcinomas were diagnosed in pyloric gland adenomas, both of which were intestinal type. For symptomatic patients who have pain and dyspepsia, cholecystectomy is the recommended treatment. For asymptomatic or incidentally detected patients, the indications for cholecystectomy should be age more than 50 years, solitary polyp greater than 10mm in largest dimension, accompanying gall stones and increase in size on serial sonographies.

Conclusion: As per our knowledge the case we report is the first case of gallbladder pyloric adenoma with squamoid morules in pediatric age group. Treatment with simple cholecystectomy is recommended in view of literature suggesting pre malignant lesion.

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1. Case Report

A 7 year old girl presented at our center with complaints of pain in upper abdomen on and off since 2 months. She was being treated with pain killers, but with no relief. An ultrasonography of the abdomen was performed which revealed a 2 x 1.3 x 0.83 cm echogenic polypoidal mass which had a vascular pedicle [Figure 1]. A low impedance flow was observed in the mass. An MRCP was performed which revealed an endophytic polypoidal T2 hypotense lesion measuring approximately 1.8 x 1.3 x 1.2 cm in

size. It was found to be arising from the anterior fundal wall showing mild homogenous post contrast enhancement [Figure 2]. The pericholecystic fat planes were maintained. There was no evidence of biliary obstruction. A likely diagnosis of gall bladder adenoma was made.

A standard four port Laparoscopic Cholecystectomy was performed and the specimen was retrieved in plastic bag through the umbilical port. It was sent for histopathological examination and immunohistochemistry. No peritoneal drain was used. The patient was discharged on 2nd post operative day. No post operative complications were observed.

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On gross examination the gall bladder measured 4.5 cm x 1.5 cm x 1 cm with a wall thickness of 0.3 to 0.4 cm. A polypoidal superficial growth was identified 2 cm away from the cystic duct margin measuring 1.5 x 1 x 1 cm with a tiny 0.2 to 0.3 cm stump (attachment to wall).

Microscopic examination of the specimen showed a benign appearing papillary-cystic glandular growth with minimal atypia situated superficial to the wall of gall bladder. No wall invasion or high grade dysplasia could be identified. Also present were several “squamous morules” which consisted of vague spindle cell whorls without keratinization [Figure 3]. As per these features it was labeled as adenoma.

Immunohistochemical studies showed positive CK 7, CK 19, CEA, Beta- Catenin. CDX2 was positive in few cells and Ki-67 was also positive (8-10%). CK20 and p53 were negative [Figure 4]. As per these features it was labeled as Pyloric Gland Adenoma with squamous morules with no evidence of malignancy.

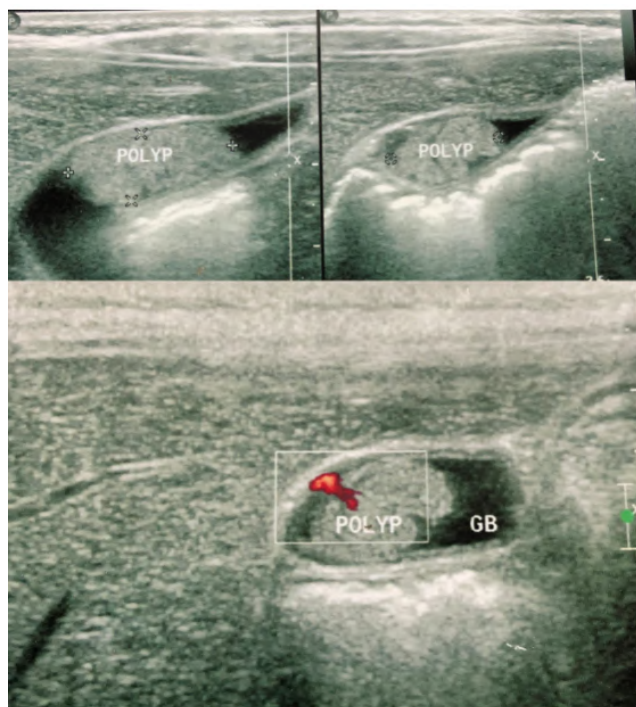


Fig. 1: Ultrasonography showing gall bladder polyp with vascular pedicle

2. Discussion

Gall bladder polyps are seen in 5% adult population of the world but rarely seen in children. Incidence has greatly increased by widespread use of ultrasonography.^{1,2} Investigators have observed malignant change on follow up of some of these adenomas and consider them as precancerous lesions.³ Adenocarcinomas of gall bladder

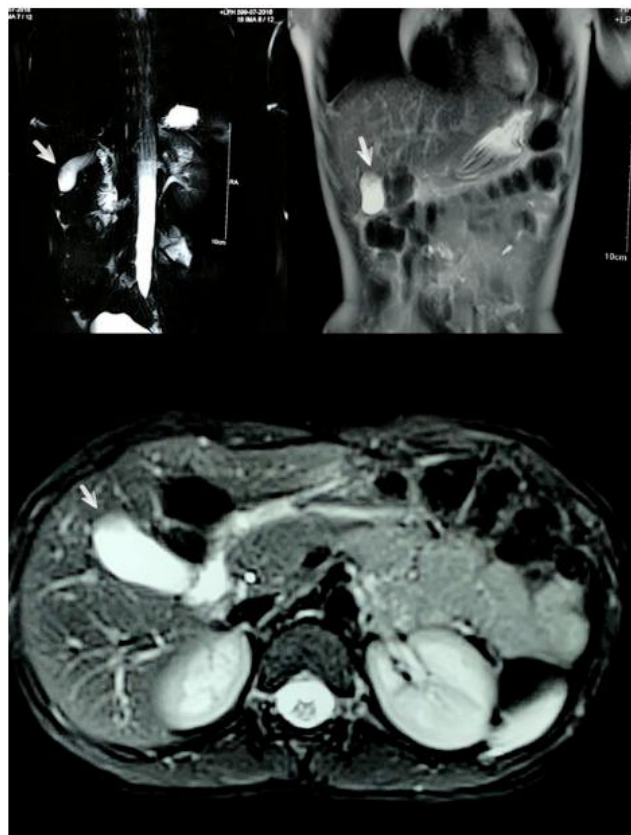


Fig. 2: MRCP transverse and coronal views, white arrows showing polyp

have been known to have poor survival. There are no specific signs and symptoms for its early diagnosis and hence it is necessary to differentiate between benign and malignant polyps.^{1,4}

Kurt Elster first described Pyloric gland adenoma, but since 1990 pyloric gland adenoma has been categorized in WHO classification of gastric tumors as a distinct neoplastic entity.⁵⁻⁷

Previous literature reports pyloric gland adenomas are mostly seen in the stomach (69%), followed by gallbladder (14%), duodenum (12%), oesophagus, gastroesophageal junction, bile duct, pancreatic duct and rectum (together <5%).⁶⁻¹⁸

Most of the patients with gall bladder adenomas are adult females. The mean age group is approximately 70 years. More than half (58%) of them present with gall stones. Majority adenomas (91%) are single.¹⁹ The reported mean tumour size is 0.6-3.5 cm.^{6-18,20}

A large study of 165 cases of pyloric gland adenomas showed 28% contained squamous morules and 2% contained columnar oxyphil cells. 27% of them carried high-grade dysplasia/carcinoma in situ and low-grade dysplasia was found in 15% of the cases. However, only 1% invasive adenocarcinomas, both of intestinal type were

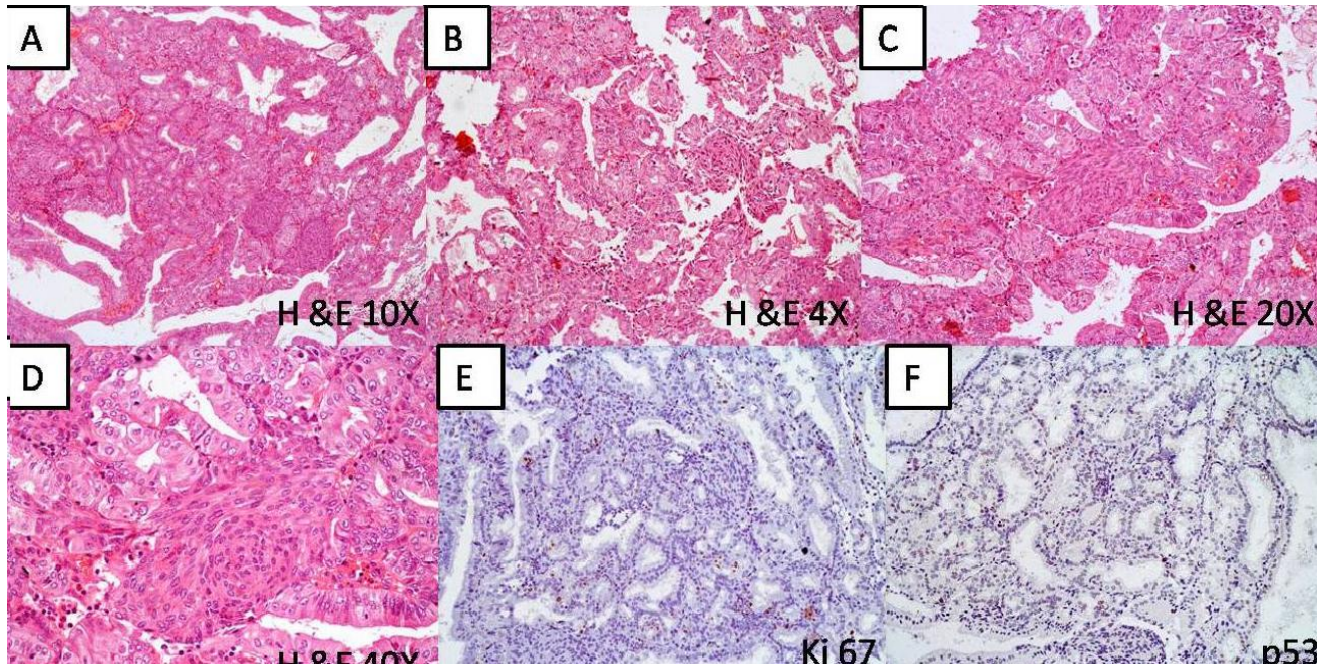


Fig. 3: A–D): H&E sections show morphology of a gall bladder pyloric gland like tubular adenoma with squamoid morules. The polypoidal lesion displays tall columnar epithelium with very low grade adenomatous features and inconspicuous mitotic activity. There are few prominent squamoid morules and no evidence of necrosis; E): Ki67 displays proliferation index of 8- 10%; F): P53 is negative excluding malignancy

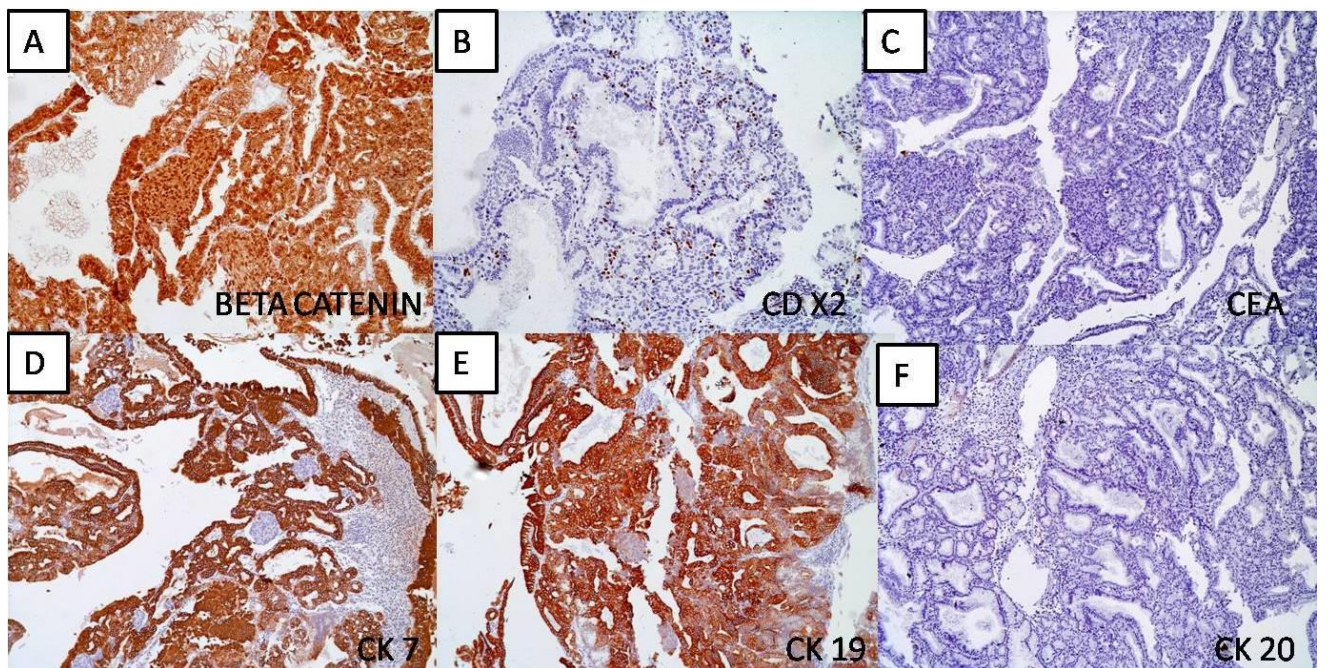


Fig. 4: A): Beta Catenin –nuclear positive; B): CDX2 –few cells positive; C): CEA- negative; D): CK7 – positive; E): CK19- negative; F): CK20- negative

diagnosed in pyloric gland adenomas. Their results indicate minor role in pathway of gallbladder carcinogenesis.¹⁹ Literature suggests the risk of malignant transformation into adenocarcinoma in up to 47% of cases of all locations.⁷ The pyloric gland adenoma may lead to the sequence of metaplasia-dysplasia-carcinoma in gallbladder and bile duct carcinogenesis.^{21,22} Literature suggests gastric metaplasia in gallbladder, pancreas, rectum and duodenum are associated with pyloric gland adenomas.^{8,15–17,22} In a study of 3 cases of adenocarcinomas of extrahepatic bile ducts, 2 cases had adjacent pyloric gland metaplasia which suggests its precancerous nature.¹⁹ Comparative genomic hybridization analyses suggest pyloric gland adenoma has a precancerous nature explained by adenoma-adenocarcinoma sequence with a great potential for invasive malignancy.²³ Pathologically PGA of GB is low grade in 70.8% and high grade/carcinomas in 29.2% of cases. Immunohistochemically, MUC6 is diffusely positive whereas MUC2, MUC5AC, and CDX2 are only focally positive. A study suggested unique histology, phenotype and molecular status of PGA of GB when compared with other sites like stomach, duodenum and pancreas. The mutation of CTNNB1 was seen in 100% and KRAS in 4.2% cases.²⁴ Ki67 expression and p53 mutations also suggest malignant transformation.⁷

For symptomatic patients who have pain and dyspepsia, cholecystectomy is the recommended treatment. For asymptomatic or incidentally detected patients, the indications for cholecystectomy should be age more than 50 years, solitary polyp greater than 10mm in largest dimension, accompanying gall stones and increase in size on serial sonographies. If the polyp shows no increase in size, no signs of malignancy and is 6-9mm in size, it should be followed up 6 monthly for at least a year.²⁵

3. Conclusion

As per our knowledge the case we report is the first case of gallbladder pyloric adenoma with squamoid morules in pediatric age group. Treatment with simple cholecystectomy is recommended in view of literature suggesting pre malignant lesion.

4. Compliance with ethical standards

This work is in compliance with ethical standards with following below mentioned details

5. Source of Funding

The authors declare no funding was obtained.

6. Conflict of Interest

The authors declare that they have no conflict of interest.

7. Informed Consent

Written informed consent was taken from participant of the study for publication of details and photographs regarding her case.

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