

CASE REPORT**Open Cholecystectomy in a 6 year old child**ZAHID HAFEEZ¹, MUHAMMAD OMAR AHMAD², SAAD AHMAD³^{1,2,3}House Officer, Shalamar Hospital, LahoreCorrespondence to Dr. Zahid Hafeez, Email: dr.muhammadzahidhafeez@gmail.com**SUMMARY**

Cholelithiasis in children has increased in prevalence, ranging from 1.9% to 4%, due to childhood obesity and ultrasound use. Cholecystectomy is the treatment of choice for symptomatic gallstones, but expectant management is preferred for patients with longer periods of symptoms and longer timeframes between diagnosis and surgery. Laparoscopic cholecystectomy is safe, with lower postoperative complications and longer operative times compared to open approaches. Early diagnosis and surgery timing are crucial for timely treatment.

Keywords: Cholecystectomy, childhood obesity, pediatric surgeons, case report, cholelithiasis

INTRODUCTION

Gallstone disease (cholelithiasis) in children has become more evident in recent times^{1,2}. The prevalence of cholelithiasis has risen recently and ranges from 1.9% to 4% in children. This is partially due to childhood obesity and the widespread use of ultrasound^{2,5}.

There is an increase in the number of Cholecystectomies being performed by pediatric surgeons due to technological advances in early ultrasound cholelithiasis diagnosis and minimally invasive surgical management⁶.

Cholecystectomy is the treatment of choice in symptomatic cholelithiasis¹. A few studies indicate preferred expectant management in pediatric patients with an increased period with symptoms and a longer timeframe between diagnosis and surgery⁴. Cholecystectomy is feasible in patients with small-sized or largennumbers of gallstones and those with persistent abdominal pain and/or jaundice. Urso-deoxy-cholic-acid administration with close follow-up is recommended in patients with uncomplicated Gallstones⁷.

Evidence of laparoscopic cholecystectomy in children and adolescents is safe resulting in lower rates of postoperative complications and length of stay, but longer operative times, when compared to the open approach⁸.

crying which was relieved after taking bruphen and panadol syrup. Parents visited different clinics where the patient was treated with fluids and analgesics. When the symptoms remained for 1 and half years, the parents considered visiting the pediatric doctor who advised the ultrasound, which showed 2 gall stones 7.1 and 7.7mm. Gall bladder wall thickness was normal. In subsequent ultrasound, it showed enlargement of these stones showing two calculi collectively measuring 8-9mm in lumen towards the neck. Then after knowing about the treatment, they came to the Shalamar outpatient department for open cholecystectomy. Baseline tests were done in preparation for surgery. All were normal except for anaemia for his age (Hb: 11.3g/dL). Open cholecystectomy was carried out.

Under aseptic measures, a right subcostal incision was made and the underlying structures were dissected. The gall bladder was identified. Cystic duct and artery were identified and ligated. The gallbladder base was dissected from the liver bed and the gallbladder was removed. The gallbladder was dissected which included 2 green-colored gallstones. Postoperative care was given and the patient was discharged the next day. The histopathology report showed chronic cholecystitis with cholelithiasis and one reactive lymph node.

**CASE PRESENTATION**

A 6-year-old boy was admitted to the hospital with a 2-year history of peri-umbilical and right hypochondrium pain. According to the parents, the patient started having intermittent pain at the right hypochondrium at 3 years old. Pain, most of the time was in the epigastric region, episodic, moderate in intensity, and non-colicky in nature, and didn't radiate to any side. It was associated with on & off vomiting. The parents described the pain as painful episodes where he used to hold his knees to his belly along with intense

Received on 06-07-2023

Accepted on 26-08-2023

CASE DISCUSSION

In recent years, pediatric cholelithiasis (gallstone illness) has become more prevalent. More procedures are being done for symptomatic gallstones in the pediatric population^{1,2}. Gallstones come in two varieties: cholesterol and pigmented. Gall stones that are pigmented are typically caused by hemolytic illness, which has a 15% occurrence rate^{1,3}, while stones that are overly saturated with cholesterol in the bile are caused by obesity and parenteral nutrition during the newborn period^{1,2}. One of the major risk factors for the onset of adult cholelithiasis is determined to be an elevated BMI. Pediatric gallstones are substantially associated with other conditions like metabolic abnormalities, parenteral feeding, cystic fibrosis, hemolytic diseases and malignancies⁴.

Cholelithiasis prevalence in children has lately increased and now varies from 1.9% to 4%. The widespread use of ultrasound^{2,5},

continues to be the gold standard for finding gallstones¹. And childhood obesity is both contributing factors to this. Because of improvements in early ultrasonography cholelithiasis detection and less invasive surgical therapy, pediatric surgeons are performing more cholecystectomies⁶. Due to a lack of resources, in our case, we had to do an open cholecystectomy. Due to changing trends, more pediatric cholecystectomy procedures are being performed by the laparoscopic method, however, it is more expensive than the open technique^{9,10}. When compared to the average hospital stay which is 3.73 days, our hospital stay in open cholecystectomy was 2 days⁸. After the procedure, no complications were recorded; nevertheless, open cholecystectomy is typically associated with higher complications⁸. However, in our example, the patient had no hemolytic condition and a normal BMI, which is consistent with the possibility that the risk factor may be inherited or related to the environment^{2,3,12-14}. The patient's gender in our case study was male. According to previous studies, male children are less likely to have gallstones as compared to females³.

CONCLUSION

Open cholecystectomy can be performed in resource-limited areas provided that a sufficiently expert surgeon is available. Diagnosis of gallstones in children by ultrasound should be done early so that the treatment can begin timely. The decision of when to perform surgery is still a dilemma and guidelines should be made.

Authorship and contribution declaration: Each author of this article fulfilled following Criteria of Authorship:

1. Conception and design of or acquisition of data or analysis and interpretation of data.
2. Drafting the manuscript or revising it critically for important intellectual content.
3. Final approval of the version for publication.

All authors agree to be responsible for all aspects of their research work.

Conflict of interest: None

Funding: None

REFERENCES

1. Rothstein DH, Harmon CM. Gallbladder disease in children. In: *Seminars in pediatric surgery* 2016 Aug 1 (Vol. 25, No. 4, pp. 225-

- 231). WB Saunders. <http://dx.doi.org/10.1053/j.sempedsurg.2016.05.005>
2. Zdanowicz K, Daniluk J, Lebensztejn DM, Daniluk U. The Etiology of Cholelithiasis in Children and Adolescents—A Literature Review. *Int. J. Mol. Sci.* 2022 Nov 2;23(21):13376.
3. Walker SK, Maki AC, Cannon RM, Foley DS, Wilson KM, Galganski LA, Wiesenauer CA, Bond SJ. Etiology and incidence of pediatric gallbladder disease. *Surgery.* 2013 Oct 1;154(4):927-33.
4. Diez S, Müller H, Weiss C, Schellerer V, Besendörfer M. Cholelithiasis and cholecystitis in children and adolescents: Does this increasing diagnosis require a common guideline for pediatricians and pediatric surgeons? *BMC Gastroenterol.* 2021 Dec;21(1):1-0.
5. Frybova B, Drabek J, Lochmannova J, Douda L, Hlava S, Zemkova D, Mixa V, Kyncl M, Zeman L, Rygl M, Keil R. Cholelithiasis and choledocholithiasis in children; risk factors for development. *PLoS One.* 2018 May 15;13(5):e0196475.
6. Chamorro CC, Arteaga P, Paredes C, Bravo NC, Giraldo CV, Betancourt GC, Márquez Z, Torres CR. Cholelithiasis and associated complications in pediatric patients. *Cir. Pediatr.* 2020 Oct 1;33:172-6.
7. Lee YJ, Park YS, Park JH. Cholecystectomy is feasible in children with small-sized or large numbers of gallstones and in those with persistent symptoms despite medical treatment. *Pediatr Gastroenterol Hepatol Nutr.* 2020 Sep;23(5):430.
8. Steffens D, Wales K, Toms C, Yeo D, Sandroussi C, Jiwane A. What surgical approach would provide better outcomes in children and adolescents undergoing cholecystectomy? Results of a systematic review and meta-analysis. *Ann. Pediatr. Surg.* 2020 Dec;16(1):1-0.
9. Akhtar-Danesh GG, Doumouras AG, Bos C, Flageole H, Hong D. Factors associated with outcomes and costs after pediatric laparoscopic cholecystectomy. *JAMA surgery.* 2018 Jun 1;153(6):551-7.
10. Balaguer EJ, Price MR, Burd RS. National trends in the utilization of cholecystectomy in children. *J Surg Res.* 2006 Jul 1;134(1):68-73.
11. Bhaumik K. Asymptomatic cholelithiasis in children: Management dilemma. *J Indian Assoc Pediatr Surg.* 2021 Jul;26(4):228.
12. Samee MU, Abaidullah K, Afzal M, Qammar M, Iqbal E, Sharif MF. Comparison of Open vs Laparoscopic Cholecystectomy in patients of Cholelithiasis having Previous Abdominal Surgeries. *Pak. J. Med. Health Sci.* 2023 Feb 7;17(01):110-.
13. Hafeez I, Siddiqui MA, Ali I, Kumar K, Soomro AU, Qayoom A. Post-Operative Outcome of Open Cholecystectomy in Patients Receiving Spinal Versus General Anesthesia. *Pak. J. Med. Health Sci.* 2022 Sep 5;16(07):582-.
14. Aslam M, Memon ML, Kumar D, Rasheed T, Zai AR. Laparoscopic Cholecystectomy in Cases of Acute Cholecystitis. *Pak. J. Med. Health Sci.* 2023;17(02):286.

This article may be cited as: Hafeez Z, Ahmad MO, Ahmad S: Open Cholecystectomy in a 6 year old child. *Pak J Med Health Sci*, 2023; 17(10): 36-37