Prevalence of Asymptomatic Gallstone in Healthy Neonates in Shiraz, Southern Iran

MR Bordbar 1, 2*, R Karami 2, K Kamali 3, N Pishva 4, M Haghighat 5
1 Hematology Research Center, Nemazee Hospital, Shiraz University of Medical Sciences, Shiraz, IR Iran
2 Pediatric Department, Shiraz University of Medical Sciences, Shiraz, IR Iran
3 Radiology Department, Shiraz University of Medical Sciences, Shiraz, IR Iran
4 Neonatology Section of Pediatric Department, Shiraz University of Medical Sciences, Shiraz, IR Iran
5 Gastroenterology Section of Pediatric Department, Shiraz University of Medical Sciences, Shiraz, IR Iran

* Corresponding author at: Mohammad Reza Bordbar, Pediatric Department, Nemazee Hospital, Shiraz University of Medical Sciences, P.O. Box: 79377-11351, Shiraz, IR Iran, Tel/Fax: +98-7116474298, e-mail: Bordbarm@sums.ac.ir

Dear Editor,

The occurrence of gallstones is a rare but it is a well-known finding in neonates and is presently diagnosed more easily. Gallstones have been associated with hematologic disorders, prematurity, prolonged fasting, parenteral nutrition, ileal resection, dehydration, phototherapy, congenital abnormalities of the biliary tract, Escherichia coli sepsis, frusemide therapy, and pseudohypoaldosteronism (1-3). In neonates, gallstones are usually asymptomatic and are accidentally discovered during routine ultrasonography. Therefore, we decided to evaluate the frequency and significance of asymptomatic gallstones in healthy neonates.

This prospective study was conducted on 761 healthy neonates (53.5% males; 92.2% full-term) born in a university-affiliated nursery between January 2008 and December 2009. The neonates had no medical or surgical diseases, and within 7 days of birth, they underwent ultrasonographic examinations (ultrasonograph model, Logic 7; General Electric, Milwaukee, USA) by an expert radiologist to detect signs of gallbladder stone or sludge. Diagnosis of gallstone was based on the presence of echogenic foci in the gallbladder lumen or acoustic shadowing. The following data were also collected: neonate’s birth date, weight at birth, route of delivery, gender, family history of gallstone, mother’s drug history during pregnancy as well as her medical history of gestation, diabetes, hypertension, or preeclampsia. Follow-up sonography was repeated after 2 weeks for those found to have gallstones. About half the neonates (49.7%) were delivered by cesarean section (C/S). Family history of gallstone was positive in 17 (2.2%) cases. None of the mothers had a history of chronic medical diseases, and they had used only folic acid, iron supplements, and multivitamins during their gestation. None of the babies included in our study required intensive phototherapy or exchange transfusion for their hyperbilirubinemia. Cholelithiasis was diagnosed in 2 out of the 761 neonates; the prevalence was 0.26%. The first case was of a full-term 3-day-old male neonate delivered by C/S and with a birth weight of 3200 g. The neonate was found to be normal on physical examination and was in good general health. Sonography revealed multiple hyperechoic foci in his gallbladder (Figure 1). The second case was of a full-term 2-day-old female neonate delivered by normal vaginal delivery and with a
birth weight of 2950 g. Sonography revealed 3 echogenic foci with acoustic shadowing in her gallbladder (Figure 2). Follow-up sonography was performed after 2 weeks, and it showed spontaneous resolution of gallstones in both cases without any medical or surgical intervention. Silent gallstones, which are accidentally discovered during routine ultrasonography, account for most of the gallstones found in neonates. In most cases, the cause of gallstones is not identified, and they are thought to have a fetal origin (2, 4-6). The prevalence of gallstones in neonates is variable in different studies, ranging from 0.13% to 1.9% (4, 7-9). We found that the prevalence was 0.26%, which was comparable to the prevalence reported in the studies by Palasciano and Gilger (4, 8). Because the number of positive cases in our study is low, we cannot confirm the predisposing factors of cholelithiasis in neonates. However, in contrast to most studies, but similar to the findings by Wesdrop, we found that the gender of the neonate was not a risk factor for cholelithiasis (6). We found no identifiable risk factors in the 2 neonates with gallstones, though possibly because the number of patients analyzed in this study was low.

There are many controversies regarding the choice of the best therapeutic strategy for gallstones. While some authors have suggested medical therapy using ursodeoxycholic acid (6), others have recommended close observation of asymptomatic cases (2, 10). In neonates, gallstones appear to be a temporary, self-limiting phenomenon, which does not warrant any aggressive treatment, unless it is associated with stricture or congenital anatomical abnormalities of the common bile duct. Cholecystectomy should be reserved for complicated cases. Observation and follow-up sonography are the only objective requirements in cases of gallstones in neonates.

Keywords: Gallstones; Infant, Newborn; Prevalence

Acknowledgments

We thank Mrs. N. Alishahi for typing and Mr. S. Kamfiroozi for English editing of this manuscript. We also thank Shirin Parand of the Hematology Research Center, Shiraz University of Medical Sciences, for improving the use of English in the manuscript.

Financial Disclosure

[will be written by author]

Funding/Support

[will be written by author]

References