



Contents lists available at ScienceDirect

International Journal of Surgery Case Reports

journal homepage: www.casereports.com

Case report of cholelithiasis in a patient with type 1 Gaucher disease



Afrim Avdaj, Naim Fanaj*, Mirsade Osmani, Agron Bytyqi, Anila Cake

Regional General Hospital, Prizren, Kosovo

ARTICLE INFO

Article history:

Received 12 August 2016
 Received in revised form 6 November 2016
 Accepted 6 November 2016
 Available online 11 November 2016

Keywords:

Cholelithiasis
 Type 1 Gaucher disease
 Kosovo

ABSTRACT

INTRODUCTION: Patients with type 1 Gaucher disease have been reported to be more likely to have cholelithiasis.

PRESENTATION OF CASE: A case of cholelithiasis in a patient with type 1 Gaucher disease; which is very intriguing to show this comorbidity. The case was the only known case with this pathology in time of diagnosis in our country (Kosovo). The patient is a 21-year old girl a known case of type 1 Gaucher disease, at the age of 8 years. The patient underwent elective laparoscopic cholecystectomy. Chronic inflammatory changes and adhesions were obvious during surgery.

DISCUSSION: Type 1 Gaucher disease patients have several risk factors for gallstone formation: increased biliary excretion of glucosylceramide, advanced liver disease and cirrhosis, splenomegaly, inborn error of metabolism, chronic systemic inflammation, T cell dysfunction, and insulin resistance" to risk factors. **CONCLUSION:** Gallstones and cholecystitis should be considered when abdominal symptoms and liver dysfunctions are seen in these patients. More studies are needed in especially Kosovo.

© 2016 The Author(s). Published by Elsevier Ltd on behalf of IJS Publishing Group Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Gaucher disease is a lipidosis caused by a deficiency of glucocerebrosidase that results in accumulation of glucocerebroside in cells of the reticular-endothelial system [1]. This disease is manifested with wide spectrum of symptoms, hepatosplenomegaly, anemia, thrombocytopenia, and bone abnormalities. Enzyme replacement therapy with modified glucocerebrosidase which targets macrophages has been established as a treatment for type 1 Gaucher disease [3]. Patients with type 1 Gaucher disease have been reported to be more likely to have cholelithiasis [4–6]. We report a case of cholelithiasis in a patient with type 1 Gaucher disease; which is very intriguing to show this comorbidity. The case was the only known case with this pathology in time of diagnosis in our country (Kosovo).

2. Presentation of case

Patient was a 21-year old girl with the diagnosis of type 1 Gaucher disease, at the age of 8 years on neurological symptoms basis and a lysosomal enzyme activity assay with skin fibroblasts. Family history about this disease was negative. Patient is treated with therapy of Cerezyme 400 units \times 4 = 1600 UI, every 2 weeks, and it started three month after diagnose of Gaucher disease was determined. At the beginning patient's symptoms were like skin

changes after injures, nose bleeding, high temperature and overall fatigue and during the ultrasonography hepatosplenomegaly was identified which was improved after ERT (Enzyme Replacement Therapy) was started. One week before the surgery patient was admitted in pediatric ward to receive the therapy according to the protocols and treatment decided during the treatment in Germany. As patient was complaining of right upper abdominal pain following fatty meals, which radiates to the back and frequent vomiting, abdominal ultrasonography was arranged for, this showed multiple gall stones with signs of cholecystitis, surgeon advice was to operate (Fig. 1).

The patient went under elective laparoscopic cholecystectomy. During the intraoperative course it was found cholecystitis with atrophic chronic inflammatory changes and adhesions around (Fig. 2). With succeeded procedures was performed the extraction of cholecystitis from the umbilical gate. In the fourth port was placed drainage in the abdominal space. After one day control visits the patient was in good general condition, the wound was quiet and without changes, abdominal drainage was completely removed. (Uneventful laparoscopic cholecystectomy was performed) The patient was discharged home with better local and general condition, and recommending for visit after 72 h.

Pathology report confirms the clinical diagnosis of chronic calculus cholecystitis (Fig. 3).

3. Discussion

Cholelithiasis is one of the most common gastrointestinal diseases in adults but is rare in children. Children who have hemolytic

* Corresponding author.

E-mail address: naimfanaj@gmail.com (N. Fanaj).

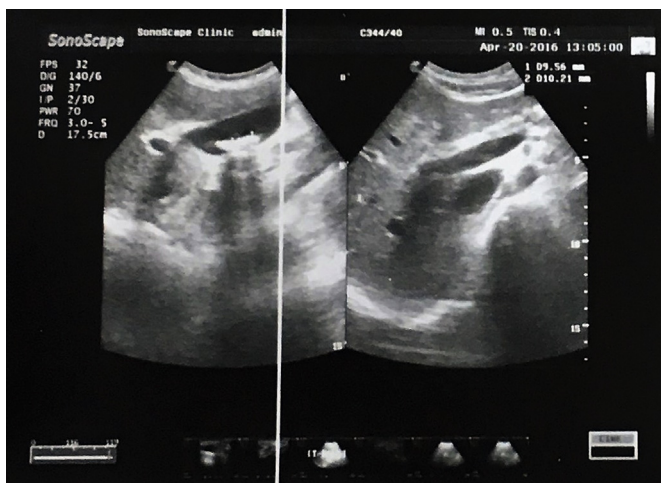


Fig. 1. Ultrasonography of the gallbladder showing gallstones.

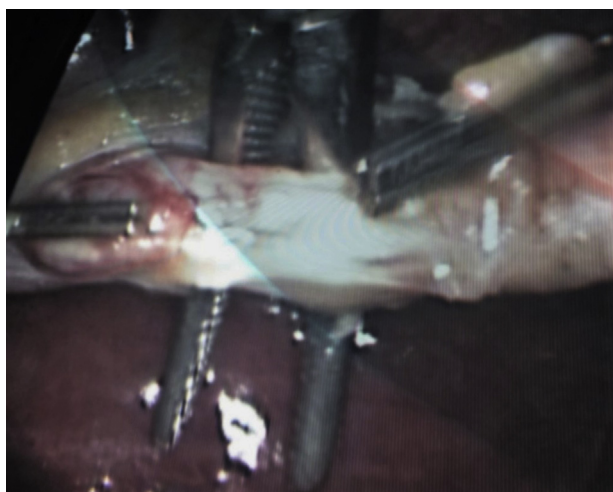


Fig. 2. Intra-operative view of ductus cysticus.

anemia or cholecystitis (due to infection with bacteria, viruses, or parasites) or receiving long-term hyper alimentation have an increased risk of gallstones [7].

The high incidence of gallstones in patients with Gaucher disease has been attributed to the high frequency of routine abdominal imaging, which would increase the likelihood that gallstones would be found. However, a cohort study has demonstrated that the

prevalence of cholesterol gallstone disease is more than five times higher in patients with type 1 Gaucher disease than to the general population [6].

Type 1 Gaucher disease patients have several risk factors for gallstone formation. First, increased biliary excretion of glucosylceramide predispose to gallstone formation. During the hepatic secretion of bile salts and phospholipids decreases, the bile is lithogenic [8]. Second, advanced liver disease and cirrhosis also contribute to gallstone [9]. The high degree of liver involvement is significantly related to a higher risk of gallstones. Third, splenomegaly, present in the most patients with Gaucher disease, is a cause of hemolysis, which increase the risk of gallstone formation [4], but according to an article published in Journal of inherited metabolic disease, 2010 June; 33(3): 291–300., authors declared that “Interestingly, asplenic patients also have higher rates of cholecystectomy for symptomatic gallstones than patients with intact spleen (25% vs 11%, $p = 0.002$)” [10].

In the present case, the patient tells that none of family members has any genetically disease. The patient’s condition was good with ERT, and she had neither hepatosplenomegaly nor hemolysis without therapy. Furthermore, liver biopsy did not show cirrhosis. These findings suggest that the cause of gallstone formation in this case was increased biliary excretion of glucosylceramide, as mentioned by Pentchev et al. [7].

4. Conclusion

Cholelithiasis must be considered as a differential diagnosis in a patient with abdominal pain and abnormal liver enzymes if he/she is a known case of Gaucher disease type 1. Laparoscopic cholecystectomy is safe and fruitful therapeutic procedure if gallstones are confirmed by ultrasound. More studies are needed to determine the incidence and prevalence of gallstones in Gaucher disease patients in especially Kosovo.

Conflict of interest

None of the authors have any conflicts of interest associated with this paper.

Written informed consent

It was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

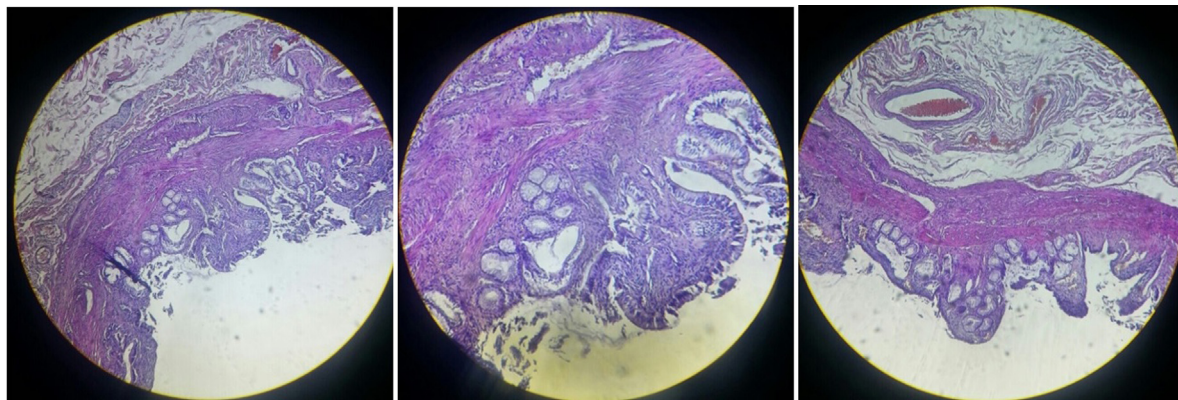


Fig. 3. Histopathology view of cholecystis preparation.

Sources of funding

None.

Ethical approval

Ethical Approval was given by Ethical committee of Regional General Hospital in Prizren, Kosovo.
Reference number 7/38, dt. 29.07.2016.

Author's contribution

Conception and design: Afrim Avdaj.
Acquisition of the data: Afrim Avdaj, Agron Bytyqi.
Analysis and interpretation of the data: Afrim Avdaj, Anila Cake.
Drafting of the article: Agron Bytyqi.
Critical revision of the article for important intellectual content: Naim Fanaj.
Statistical expertise: Naim Fanaj, Mirsade Osmani.
Administrative, technical, or logistic support: Agron Bytyqi.
Collection and assembly of data: Afrim Avdaj, Mirsade Osmani.

Guarantor

Dr. sci. Afrim Avdaj.

References

- [1] R.O. Brady, J.N. Kanfer, D. Shapiro, Metabolism of glucocerebrosides II. Evidence of an enzymatic deficiency in Gaucher's disease, *Biochem. Biophys. Res. Commun.* 18 (1965) 221–225.
- [2] N.W. Barton, R.O. Brady, J.M. Dambrosia, et al., Replacement therapy for inherited enzyme deficiency –macrophage –targeted glucocerebrosidase for Gaucher's disease, *N. Engl. J. Med.* 324 (1991) 1464–1470.
- [3] H. Rosenbaum, E. Sidransky, Cholelithiasis in patients with Gaucher disease, *Blood Cells Mol. Dis.* 28 (2002) 21–27.
- [4] M. Ben Harosh-Katz, M. Patlas, I. Hadas-Halpern, A. Zimran, D. Elstein, Increased prevalence of cholelithiasis in Gaucher disease: association with splenectomy but not with Gilbert syndrome, *J. Clin. Gastroenterol.* 38 (2004) 586–589.
- [5] T.H. Taddei, J. Dziura, S. Chen, et al., High incidence of cholesterol gallstone disease in type 1 Gaucher disease: characterizing the biliary phenotype of type 1 Gaucher disease, *J. Inherit. Metab. Dis.* 33 (2010) 291–300.
- [6] C.F. Bellows, D.H. Berger, R.A. Crass, Management of gallstones, *Am. Fam. Phys.* 72 (2005) 632–642.
- [7] P.G. Pentchel, A.E. Gal, R. Wong, et al., Biliary excretion of glycolipid in induced or inherited glucosylceramide lipiosis, *Biochim. Biophys. Acta* 665 (1981) 615–618.
- [8] A. Maggi, D. Solenghi, A. Panzeri, et al., Prevalence and incidence of cholelithiasis in patients with liver cirrhosis, *Ital. J. Gastroenterol. Hepatol.* 29 (1997) 330–335.
- [9] T.H. Taddei, J. Dziura, S. Chen, et al., High incidence of cholesterol gallstone disease in type 1 Gaucher disease: characterizing the biliary phenotype of type 1 Gaucher disease, *J. Inherit. Metab. Dis.* 33 (3) (2010) 291–300, <http://dx.doi.org/10.1007/s10545-010-9070-1>.

Open Access

This article is published Open Access at scimedirect.com. It is distributed under the [IJSCR Supplemental terms and conditions](#), which permits unrestricted non commercial use, distribution, and reproduction in any medium, provided the original authors and source are credited.