

HOSTED BY

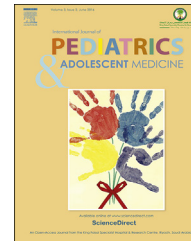


ELSEVIER

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

ScienceDirect

journal homepage: <http://www.elsevier.com/locate/ijpam>



WHAT'S YOUR DIAGNOSIS

# Answer: Retroperitoneal air secondary to micro-perforation



Haifa Al Awadhi\*, Ali Al Mehadib

King Faisal Specialist Hospital & Research Centre, MBC 58, P.O. Box 3354, Riyadh 11211, Saudi Arabia

Received 19 January 2016; accepted 4 March 2016

Available online 28 July 2016

Perforations following ERCP accounts for less than 1%, however the mortality rate can reach up to 16% [1,2]. Multiple risk factors have been implicated including Sphincter of Oddi dysfunction, papillary stenosis, anatomical alterations due to previous surgeries and prolonged ERCP duration [2].

The symptoms of perforation can range from asymptomatic to peritonitis and sepsis [1]. Consequently, the management differs. Based on the above, multiple attempts have been made by different authors to classify the types of injury and therefore recommend the most appropriate management [2]. One classification depends on the site of injury as follows:

Type I: In this type the injury is in the lateral or medial wall of the duodenum. It usually causes large persistent pancreatic leak to the retroperitoneal or intraperitoneal space. It requires immediate diagnosis and surgical repair.

Type II: In this type, the perforation occurs in the perampullary area, usually during sphincterotomy. In this type, the retroperitoneal area is the main site for accumulation of the leakage.

Type III: Refers to perforation occurring within the bile duct. It usually occurs during the insertion of a guide wire, treatment of bile duct stone or in biliary strictures.

Type II and III can be managed either conservatively or surgically depending on the presenting symptoms and the progression of the disease.

Type IV: retroperitoneal air accumulation. It considered as a non-true perforation that results from the use of compressed air to keep the lumen open. Therefore no surgical intervention is required.

Perforation injuries can be missed during an ERCP procedure despite careful observation as these patients are usually under anesthesia. Therefore, intraprocedural contrast medium leakage or free air detection plus a post procedural radiograph should be performed [1,2]. If a perforation is suspected, patients should have a CT examination to confirm leakage, keeping in mind that fluid collection is more important than the presence of free air. Such a finding indicates continuous bile or pancreatic juice leakage through the perforation site.

In addition to the above, endoscopic management has been introduced in recent years with successful outcomes. Clipping and spraying fibrin glue on the perforation sites have been used [2].

In relation to our patient, Type II perforation is the most likely type. Our patient needed a large sphincterotome in order to be able to retrieve the large sized CBD stone. In addition the abnormal anatomy this patient had, secondary to his duodenal atresia repair, increased his risk for perforation. This is further supported by the subsequent course of this patient; he responded to the conservative management and his retroperitoneal air disappeared on follow up

DOI of original article: <http://dx.doi.org/10.1016/j.ijpam.2016.03.001>.

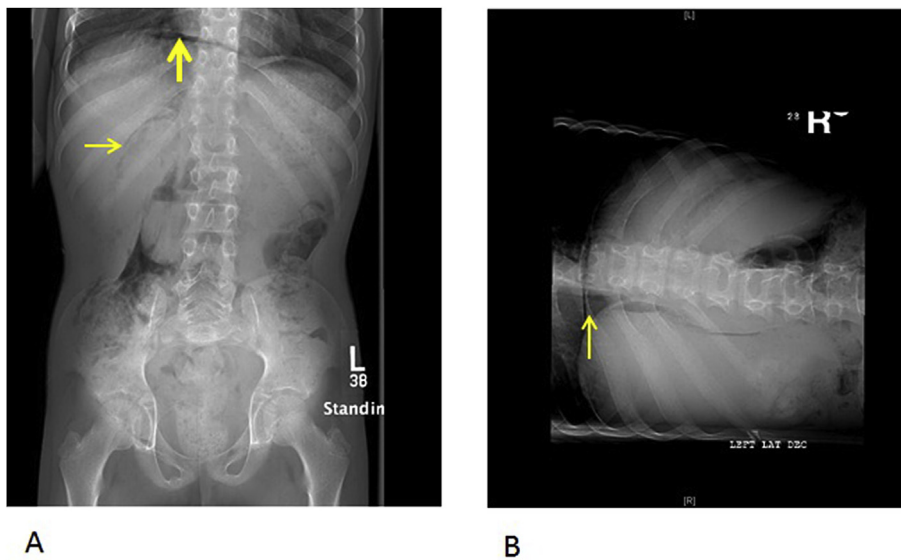
\* Corresponding author. King Faisal Specialist Hospital & specialist Center, Department of Pediatrics, MBC 58, P.O. Box 3354, Riyadh 11211, Saudi Arabia. Tel: 966 11 4647272x27762; fax: 966 11 442778.

E-mail addresses: [h\\_awadhi@hotmail.com](mailto:h_awadhi@hotmail.com), [hkalawadhi@gmail.com](mailto:hkalawadhi@gmail.com) (H. Al Awadhi).

Peer review under responsibility of King Faisal Specialist Hospital & Research Centre (General Organization), Saudi Arabia.

<http://dx.doi.org/10.1016/j.ijpam.2016.07.001>

2352-6467/Copyright © 2016, King Faisal Specialist Hospital & Research Centre (General Organization), Saudi Arabia. Production and hosting by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).



**Figure 1** Retroperitoneal air. ↑: sub-diaphragmatic air did not move between standing and lateral decubitus positions, A & B. →: retroperitoneal air outlining the right kidney.

CT examination 10 days later. Subsequently, he was seen in the outpatient clinic a month later and he was asymptomatic. His Abdominal xray at the time of his visit was normal (Fig. 1).

#### Conflict of interest

None to be declared by the authors.

#### References

- [1] Stapfer M, Selby R, Stain S, Katkhouda N, Parekh D, Jabbour N, et al. Management of duodenal perforation after endoscopic retrograde cholangiopancreatography and sphincterotomy. *Ann Surg* 2000;232(2):191–8.
- [2] Bum Chu K. The management of endoscopic retrograde cholangiopancreatography-related duodenal perforation. *J Clin Endosc* 2014;47:341–5.