REVIEW

3664 Kikuchi-Fujimoto disease: A comprehensive review
Mahajan VK, Sharma V, Sharma N, Rani R

3680 Current diagnostic tools and treatment modalities for rectal prolapse
Oruc M, Erol T

MINIREVIEWS

3694 Application of laparoscopic surgery in gallbladder carcinoma
Wu X, Li BL, Zheng CJ

3706 Current research of idiopathic normal pressure hydrocephalus: Pathogenesis, diagnosis and treatment
Ishida T, Murayama T, Kobayashi S

3714 Helicobacter pylori plays a key role in gastric adenocarcinoma induced by spasmolytic polypeptide-expressing metaplasia
Li ML, Hong XX, Zhang WJ, Liang YZ, Cai TT, Xu YF, Pan HF, Kang JY, Guo SJ, Li HW

3725 Review of deep learning and artificial intelligence models in fetal brain magnetic resonance imaging

3736 Diabetes more than retinopathy, it’s effect on the anterior segment of eye
Morya AK, Ramesh PV, Kaur K, Gurnani B, Heda A, Bhatia K, Sinha A

ORIGINAL ARTICLE

Retrospective Cohort Study

3750 Long term outcomes of Cohen’s cross trigonal reimplantation for primary vesicoureteral reflux in poorly functioning kidney
Ansari MS, Banthia R, Jain S, Kaushik VN, Danish N, Yadav P

Retrospective Study

3756 Dexmedetomidine-induced anesthesia in elderly patients undergoing hip replacement surgery
Li JQ, Yuan H, Wang XQ, Yang M

Observational Study

3765 Hypoperfusion context as a predictor of 28-d all-cause mortality in septic shock patients: A comparative observational study
Kataria S, Singh O, Juneja D, Goel A, Bhide M, Yadav D
<table>
<thead>
<tr>
<th>Article Number</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>3780</td>
<td>Psychological review of hemodialysis patients and kidney transplant recipients during the COVID-19 pandemic</td>
<td>Gundogmus AG, Ogue EG, Guler-Cimen S, Kocyigit Y, Dogan AE, Ayli MD</td>
</tr>
</tbody>
</table>

**Randomized Controlled Trial**

<table>
<thead>
<tr>
<th>Article Number</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>3802</td>
<td>Coaxial radiography guided puncture technique for percutaneous transforaminal endoscopic lumbar discectomy: A randomized control trial</td>
<td>Chen LP, Wen BS, Xu H, Lu Z, Yan LJ, Deng H, Fu HB, Yuan HJ, Hu PP</td>
</tr>
</tbody>
</table>

**CASE REPORT**

<table>
<thead>
<tr>
<th>Article Number</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>3822</td>
<td>Valve repair after infective endocarditis secondary to perforation caused by <em>Streptococcus gordonii</em>: A case report</td>
<td>Qu YF, Yang J, Wang JY, Wei B, Ye XH, Li YX, Han SL</td>
</tr>
<tr>
<td>3830</td>
<td><em>Prevotella oris</em>-caused meningitis and spinal canal infection: A case report</td>
<td>Zhang WW, Ai C, Mao CT, Liu DK, Guo Y</td>
</tr>
<tr>
<td>3847</td>
<td>TACC diagnosed by transoesophageal endoscopic ultrasonography: A case report</td>
<td>Pu XX, Xu QW, Liu BY</td>
</tr>
<tr>
<td>3852</td>
<td>Ruptured teratoma mimicking a pelvic inflammatory disease and ovarian malignancy: A case report</td>
<td>Lai PH, Ding DC</td>
</tr>
<tr>
<td>3858</td>
<td>Purpura annularis telangiectodes of Majocchi: A case report</td>
<td>Pu YJ, Jiang HJ, Zhang L</td>
</tr>
<tr>
<td>3864</td>
<td>Giant cyst in heterotopic pregnancy: A case report</td>
<td>Kong YY, Chanda K, Ying XY</td>
</tr>
<tr>
<td>Page</td>
<td>Title</td>
<td>Authors</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>3885</td>
<td>Traumatic pancreatic ductal injury treated by endoscopic stenting in a 9-year-old boy: A case report</td>
<td>Kwon HJ, Jung MK, Park J</td>
</tr>
<tr>
<td>3907</td>
<td>Unusual clinical presentation of oral pyogenic granuloma with severe alveolar bone loss: A case report and review of literature</td>
<td>Lomelí Martínez SM, Bocanegra Morando D, Mercado González AE, Gómez Sandoval JR</td>
</tr>
<tr>
<td>3915</td>
<td>Intraoperative photodynamic therapy for tracheal mass in non-small cell lung cancer: A case report</td>
<td>Jung HS, Kim HJ, Kim KW</td>
</tr>
<tr>
<td>3921</td>
<td>Coexistence of urinary tuberculosis and urothelial carcinoma: A case report</td>
<td>Tsai YC, Li CC, Chen BT, Wang CY</td>
</tr>
</tbody>
</table>

**LETTER TO THE EDITOR**

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>3929</td>
<td>Symmetric DWI hyperintensities in CMT1X patients after SARS-CoV-2 vaccination should not be classified as stroke-like lesions</td>
<td>Finsterer J</td>
</tr>
</tbody>
</table>
ABOUT COVER
Editorial Board Member of World Journal of Clinical Cases, Ashraf F Hefny, MD, MSc, Associate Professor, Surgeon, Department of Surgery, College of Medicine and Health Sciences, UAE University, Al Ain 00000, United Arab Emirates. ahefny@uaeu.ac.ae

AIMS AND SCOPE
The primary aim of World Journal of Clinical Cases (WJCC, World J Clin Cases) is to provide scholars and readers from various fields of clinical medicine with a platform to publish high-quality clinical research articles and communicate their research findings online.

WJCC mainly publishes articles reporting research results and findings obtained in the field of clinical medicine and covering a wide range of topics, including case control studies, retrospective cohort studies, retrospective studies, clinical trials studies, observational studies, prospective studies, randomized controlled trials, randomized clinical trials, systematic reviews, meta-analysis, and case reports.

INDEXING/ABSTRACTING
The WJCC is now abstracted and indexed in Science Citation Index Expanded (SCIE, also known as SciSearch®), Journal Citation Reports/Science Edition, Current Contents/Clinical Medicine, PubMed, PubMed Central, Scopus, Reference Citation Analysis, China National Knowledge Infrastructure, China Science and Technology Journal Database, and Superstar Journals Database. The 2022 Edition of Journal Citation Reports® cites the 2021 impact factor (IF) for WJCC as 1.534; IF without journal self cites: 1.491; 5-year IF: 1.599; Journal Citation Indicator: 0.28; Ranking: 135 among 172 journals in medicine, general and internal; and Quartile category: Q4. The WJCC’s CiteScore for 2021 is 1.2 and Scopus CiteScore rank 2021: General Medicine is 443/826.

RESPONSIBLE EDITORS FOR THIS ISSUE
Production Editor: Si Zhao; Production Department Director: Xu Guo; Editorial Office Director: Jin-Lai Wang.

NAME OF JOURNAL
World Journal of Clinical Cases

ISSN
ISSN 2307-8960 (online)

LAUNCH DATE
April 16, 2013

FREQUENCY
Thrice Monthly

EDITORS-IN-CHIEF
Bao-Gan Peng, Jerzy Tadeusz Chudek, George Kontogeorgos, Maurizio Serati, Ja Hyeon Ku

EDITORIAL BOARD MEMBERS
https://www.wjgnet.com/2307-8960/editorialboard.htm

PUBLICATION DATE
June 6, 2023

COPYRIGHT
© 2023 Baishideng Publishing Group Inc

INSTRUCTIONS TO AUTHORS
https://www.wjgnet.com/bpg/gerinfo/204

GUIDELINES FOR ETHICS DOCUMENTS
https://www.wjgnet.com/bpg/GerInfo/287

GUIDELINES FOR NON-NATIVE SPEAKERS OF ENGLISH
https://www.wjgnet.com/bpg/gerinfo/240

PUBLICATION ETHICS
https://www.wjgnet.com/bpg/GerInfo/288

PUBLICATION MISCONDUCT
https://www.wjgnet.com/bpg/gerinfo/208

ARTICLE PROCESSING CHARGE
https://www.wjgnet.com/bpg/gerinfo/242

STEPS FOR SUBMITTING MANUSCRIPTS
https://www.wjgnet.com/bpg/gerinfo/239

ONLINE SUBMISSION
https://www.f6publishing.com
CASE REPORT

Traumatic pancreatic ductal injury treated by endoscopic stenting in a 9-year-old boy: A case report

Hyung Jun Kwon, Min Kyu Jung, Jinyoung Park

Abstract

BACKGROUND

Traumatic pancreatic injury is relatively rare in children, accounting for approximately 3%-12% of blunt abdominal trauma cases. Most traumatic pancreatic injuries in boys are related to bicycle handlebars. Traumatic pancreatic injuries often result in delayed presentation and treatment, leading to high morbidity and mortality. The management of children with traumatic main pancreatic duct injuries is still under debate.

CASE SUMMARY

We report the case of a 9-year-old boy who was presented at our institution with epigastric pain after being stuck with his bicycle handlebar at the upper abdomen and then treated with endoscopic stenting because of a pancreatic ductal injury.

CONCLUSION

We believe that endoscopic stenting of pancreatic ductal injuries may be a feasible technique in certain cases of children with traumatic pancreatic duct injuries to avoid unnecessary operations.

Key Words: Pancreatic injury; Trauma; Endoscopic pancreatic stent; Pediatrics; Case report

©The Author(s) 2023. Published by Baishideng Publishing Group Inc. All rights reserved.
Core Tip: Traumatic pancreatic injuries often result in delayed presentation and treatment, leading to high morbidity and mortality. The management of children with traumatic main pancreatic duct injuries is still under debate. We report the case of a 9-year-old boy who was presented at our institution with epigastric pain after being stuck with his bicycle handlebar at the upper abdomen and then treated with endoscopic stenting because of a pancreatic ductal injury. We believe that endoscopic stenting of pancreatic ductal injuries may be a feasible technique in certain cases of children with traumatic pancreatic duct injuries to avoid unnecessary operations.

Citation: Kwon HJ, Jung MK, Park J. Traumatic pancreatic ductal injury treated by endoscopic stenting in a 9-year-old boy: A case report. World J Clin Cases 2023; 11(16): 3885-3890
URL: https://www.wjgnet.com/2307-8960/full/v11/i16/3885.htm
DOI: https://dx.doi.org/10.12998/wjcc.v11.i16.3885

INTRODUCTION

Traumatic pancreatic injuries in children are relatively rare because the pancreas is anatomically fixed at the retroperitoneal location, and it accounts for approximately 0.3%-0.7% of all pediatric trauma cases[1-3] and 3%-12% of children with blunt abdominal trauma[4]. Traumatic pancreatic injuries often result in delayed presentation and treatment, leading to high morbidity and mortality. The optimal management of traumatic pancreatic injuries in children has remained a challenge. Herein, we report the case of a 9-year-old boy who was presented at our institution with epigastric pain after being stuck with his bicycle handlebar at the upper abdomen and then treated with endoscopic stenting because of a pancreatic ductal injury.

CASE PRESENTATION

Chief complaints
A 9-year-old boy was admitted to our trauma center with epigastric pain after being stuck with his bicycle handlebar in the upper abdomen.

History of present illness
He complained of mild pain in the epigastric area.

History of past illness
He had no previous medical history.

Personal and family history
His personal and family history were unremarkable.

Physical examination
His vital signs were as follows: Blood pressure, 120/80 mmHg; heart rate, 86 beats per min; respiratory rate, 20 breaths per min; and body temperature, 36.5 °C at the time of arrival. The abdominal physical examination revealed mild tenderness in the epigastrium.

Laboratory examinations
Initial laboratory values revealed normal values for his hemoglobin, platelet, erythrocyte sedimentation rate, and C-reactive protein, however, the white blood cell count was elevated to 13.13 × 10^9/L (normal range, 4.8-10.8). Renal and hepatic function tests were also within normal limits. Serum amylase and lipase levels were elevated to 841 (normal range, 28-110) U/L and 1159 (normal range, 13-60) U/L, respectively.

Imaging examinations
The initial abdominal computed tomography (CT) showed a low attenuation line indicating the transection across the neck of the pancreas with mild fat infiltration into the transverse mesocolon (Figure 1). The pancreatic injury was classified as grade III (distal transection or parenchymal injury with duct injury) according to the American Association for the Surgery of Trauma guidelines. On day 2 after the injury, the serum amylase and lipase levels were 1251 and 1033 U/L, respectively. The follow-up abdominal CT showed progression of the pancreatic disruption and an increase in the amounts of
Figure 1 Initial abdominal computed tomography scan shows a low attenuation line indicating the transection across the neck of the pancreas.

fluid around the pancreas.

**FINAL DIAGNOSIS**

Endoscopic retrograde cholangiopancreatography (ERCP) was performed and revealed a major pancreatic duct disruption with contrast extravasation at the neck of the pancreas (Figure 2).

**TREATMENT**

Endoscopic pancreatic stenting to the distal pancreatic duct was performed. A 5-French pancreatic stent of 7 cm length was placed successfully into the distal pancreatic duct across the injury site of the pancreatic duct (Figure 3). For 2 wk after the injury, the patient was managed conservatively with fasting and total parenteral nutrition. The postprocedural course after stent placement was uneventful. Serum amylase and lipase levels were normalized. He was discharged from the hospital without complications on day 35 after the injury. The pancreatic stent was removed endoscopically without complications 2 mo after the injury.

**OUTCOME AND FOLLOW-UP**

Pancreatic duct stricture, pseudocyst, or pancreatic atrophy did not appear on a follow-up abdominal CT 10 mo after the injury. The patient has done well without further symptoms or complications at a follow-up of 4 years.

**DISCUSSION**

Traumatic pancreatic injuries are relatively rare in children because the pancreas is anatomically fixed at the retroperitoneal location, and they account for approximately 0.3%-0.7% of all pediatric trauma cases [1-3] and 3%-12% of children with blunt abdominal trauma[4]. Most traumatic pancreatic injuries in boys are related to bicycle handlebars[2]. In children, the mechanism of trauma is usually related to the direct compression of the pancreas against the underlying lumbar vertebrae, with a high rate of injury at the pancreatic neck. Traumatic pancreatic injuries often result in delayed presentation and treatment, leading to high morbidity and mortality.

Serum amylase is considered a valuable screening test for traumatic pancreatic injuries. However, the change in serum amylase level by serial estimation must be measured because the serum amylase level may be normal within 48 h after the traumatic injury[5,6].

Abdominal CT remains the most effective and widely available imaging modality to assess the traumatic pancreatic injury in children. However, several reports have mentioned the limitations of CT in detecting pancreatic ductal injuries[6-9]. It may be unreliable in the first 24 h after the traumatic injury because of early tissue edema and the relative lack of retroperitoneal fat planes in children. In addition,
Figure 2 Endoscopic retrograde cholangiopancreatography reveals a major disruption of the pancreatic duct with contrast extravasation at the neck of the pancreas.

Figure 3 A 5-Fr pancreatic stent of 7 cm in length was placed successfully into the distal pancreatic duct across the injury site of the pancreatic duct.

the transection of the pancreas may not be apparent until the tissue edema subsides to demonstrate parenchymal disruption[7].

Defining the integrity of the pancreatic duct is critical in making a treatment decision for operative vs nonoperative management in a patient with a traumatic pancreatic injury. Compared with CT, magnetic resonance cholangiopancreatography (MRCP) is often performed to gain supplementary information about the integrity of the pancreatic duct. MRCP can distinctly visualize the pancreatic duct injury and other signs of pancreatic injuries, such as laceration, fluid, and hematoma. However, in a multi-institutional analysis, MRCP was more useful than CT for identifying the pancreatic duct but may not be superior for confirmation of the pancreatic duct integrity in children with blunt traumatic pancreatic injuries[8]. They suggested that ERCP may be necessary to confirm pancreatic duct disruption when considering pancreatic resection[8].
The effectiveness of ERCP to delineate the pancreatic duct anatomy in traumatic pancreatic injuries has been well documented in adults. ERCP accurately demonstrates the location and degree of pancreatic duct disruption and guides treatment decisions based on the degree of the pancreatic duct injury. Furthermore, the pancreatic ductal injury may be stented with ERCP to facilitate nonoperative management. Endoscopic pancreatic stenting can also ameliorate the patient’s clinical condition and resolve pancreatic fistula or pseudocyst. However, its application in children remains poorly described because of technical difficulty in cannulating the small ampulla of Vater, infection, and post-ERCP pancreatitis. Since the first description by Hall et al,[10] several studies have suggested the safety and effectiveness of ERCP in children[11-13]. Rescorla et al[13] conducted ERCP in six children with major pancreatic ductal transection without serious adverse effects related to ERCP.

The optimal management of traumatic pancreatic injuries in children remains challenging. The advantages and safety of operative vs nonoperative management, especially in cases of traumatic pancreatic ductal injuries, are still being debated[14-18]. The nonoperative treatment of a minor pancreatic injury without a ductal injury (grade I) is generally recognized because they usually resolve spontaneously after conservative treatment[19-21]. However, there have been controversies regarding the most suitable management for children (grade II, III, or IV) with more serious pancreatic injuries or main pancreatic duct injuries. Early operative treatment might shorten the length of hospital stay and reduce the incidence of pseudocyst formation and total parenteral nutrition-associated complications.

Nevertheless, there would be surgery-related complications, such as pancreatic fistula, small bowel obstruction, and incidental splenectomy[2]. Meier et al[17] reported that early surgical pancreatic resection restores the child’s health and lessens the inconvenience and emotional stress associated with longer hospitalization than nonoperative management. Jobst et al[18] mentioned that distal pancreatic duct injuries were best treated by prompt spleen-sparing distal pancreatectomy. However, since most reports are retrospective studies that analyzed a small number of cases and injuries and management vary, a clear treatment guideline on how to treat pediatric patients with traumatic pancreatic injuries is not easy to establish.

CONCLUSION

In summary, we believe that endoscopic stenting of pancreatic ductal injuries may be a feasible technique in certain cases of children with traumatic pancreatic duct injuries to avoid unnecessary operations.

FOOTNOTES

Author contributions: Kwon HJ, Jung MK, and Park J contributed to manuscript writing and editing, and data collection; Kwon HJ and Park J contributed to data analysis; Jung MK contributed to conceptualization and supervision; All authors have read and approved the final manuscript.

Informed consent statement: Informed written consent was obtained from the patient and his parents for publication of this case report and any accompanying images.

Conflict-of-interest statement: All the authors report no relevant conflicts of interest for this article.

CARE Checklist (2016) statement: The authors have read CARE Checklist (2016), and the manuscript was prepared and revised according to CARE Checklist (2016).

Open-Access: This article is an open-access article that was selected by an in-house editor and fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution NonCommercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: https://creativecommons.org/Licenses/by-nc/4.0/

Country/Territory of origin: South Korea

ORCID number: Min Kyu Jung 0000-0001-8749-408X; Jinyoung Park 0000-0003-4708-6203.

S-Editor: Li L
L-Editor: A
P-Editor: Fan JR
REFERENCES


