

World Journal of *Clinical Cases*

World J Clin Cases 2020 September 6; 8(17): 3621-3919



REVIEW

- 3621** Autoimmunity as the comet tail of COVID-19 pandemic
Talotta R, Robertson E
- 3645** Gender medicine: Lessons from COVID-19 and other medical conditions for designing health policy
Machluf Y, Chaïter Y, Tal O

MINIREVIEWS

- 3669** Complexities of diagnosis and management of COVID-19 in autoimmune diseases: Potential benefits and detriments of immunosuppression
Georgiev T, Angelov AK

ORIGINAL ARTICLE

Retrospective Study

- 3679** Incidental anal ¹⁸fluorodeoxyglucose uptake: Should we further examine the patient?
Moussaddaq AS, Brochard C, Palard-Novello X, Garin E, Wallenhorst T, Le Balc'h E, Merlini L'heritier A, Grainville T, Siproudhis L, Lièvre A
- 3691** Emergency surgery in COVID-19 outbreak: Has anything changed? Single center experience
D'Urbano F, Fabbri N, Koleva Radica M, Rossin E, Carcoforo P
- 3697** Somatostatin receptor scintigraphy in the follow up of neuroendocrine neoplasms of appendix
Saponjski J, Macut D, Sobic-Saranovic D, Ognjanovic S, Bozic Antic I, Pavlovic D, Artiko V
- 3708** Efficacy of stool multiplex polymerase chain reaction assay in adult patients with acute infectious diarrhea
Ahn JS, Seo SI, Kim J, Kim T, Kang JG, Kim HS, Shin WG, Jang MK, Kim HY
- 3718** Comparison of gemcitabine plus nab-paclitaxel and FOLFIRINOX in metastatic pancreatic cancer
Han SY, Kim DU, Seol YM, Kim S, Lee NK, Hong SB, Seo HI
- 3730** Shear wave elastography may be sensitive and more precise than transient elastography in predicting significant fibrosis
Yao TT, Pan J, Qian JD, Cheng H, Wang Y, Wang GQ
- 3743** Radioactive ¹²⁵I seed implantation for locally advanced pancreatic cancer: A retrospective analysis of 50 cases
Li CG, Zhou ZP, Jia YZ, Tan XL, Song YY
- 3751** Active surveillance in metastatic pancreatic neuroendocrine tumors: A 20-year single-institutional experience
Gao HL, Wang WQ, Xu HX, Wu CT, Li H, Ni QX, Yu XJ, Liu L

- 3763** Clinical efficacy of tocilizumab treatment in severe and critical COVID-19 patients

Zeng J, Xie MH, Yang J, Chao SW, Xu EL

- 3774** Phosphatidylinositol-3,4,5-trisphosphate dependent Rac exchange factor 1 is a diagnostic and prognostic biomarker for hepatocellular carcinoma

Cai Y, Zheng Q, Yao DJ

Observational Study

- 3786** Awareness and attitude of fecal microbiota transplantation through transendoscopic enteral tubing among inflammatory bowel disease patients

Zhong M, Sun Y, Wang HG, Marcella C, Cui BT, Miao YL, Zhang FM

CASE REPORT

- 3797** Cauda equina arachnoiditis – a rare manifestation of West Nile virus neuroinvasive disease: A case report

Santini M, Zupetic I, Viskovic K, Krznaric J, Kutlesa M, Krajinovic V, Polak VL, Savic V, Tabain I, Barbic L, Bogdanic M, Stevanovic V, Mrzljak A, Vilibic-Cavlek T

- 3804** Portal gas in neonates; is it always surgical? A case report

Altokhais TI

- 3808** Large lingual heterotopic gastrointestinal cyst in a newborn: A case report

Lee AD, Harada K, Tanaka S, Yokota Y, Mima T, Enomoto A, Kogo M

- 3814** Osteochondral lesion of talus with gout tophi deposition: A case report

Kim T, Choi YR

- 3821** Traumatic neuroma of remnant cystic duct mimicking duodenal subepithelial tumor: A case report

Kim DH, Park JH, Cho JK, Yang JW, Kim TH, Jeong SH, Kim YH, Lee YJ, Hong SC, Jung EJ, Ju YT, Jeong CY, Kim JY

- 3828** Autoimmune hepatitis in a patient with immunoglobulin A nephropathy: A case report

Jeon YH, Kim DW, Lee SJ, Park YJ, Kim HJ, Han M, Kim IY, Lee DW, Song SH, Lee SB, Seong EY

- 3835** Diagnosis of an actively bleeding brachial artery hematoma by contrast-enhanced ultrasound: A case report

Ma JJ, Zhang B

- 3841** Lung adenocarcinoma harboring rare epidermal growth factor receptor L858R and V834L mutations treated with icotinib: A case report

Zhai SS, Yu H, Gu TT, Li YX, Lei Y, Zhang HY, Zhen TH, Gao YG

- 3847** Gastroduodenitis associated with ulcerative colitis: A case report

Yang Y, Li CQ, Chen WJ, Ma ZH, Liu G

- 3853** Majocchi's granuloma caused by *Trichophyton rubrum* after facial injection with hyaluronic acid: A case report

Liu J, Xin WQ, Liu LT, Chen CF, Wu L, Hu XP

- 3859** Novel deletion mutation in Bruton's tyrosine kinase results in X-linked agammaglobulinemia: A case report
Hu XM, Yuan K, Chen H, Chen C, Fang YL, Zhu JF, Liang L, Wang CL
- 3867** Multidisciplinary treatment of life-threatening hemoptysis and paraplegia of choriocarcinoma with pulmonary, hepatic and spinal metastases: A case report
Lin YY, Sun Y, Jiang Y, Song BZ, Ke LJ
- 3875** Diagnostic value of ultrasound in the spontaneous rupture of renal angiomyolipoma during pregnancy: A case report
Zhang T, Xue S, Wang ZM, Duan XM, Wang DX
- 3881** Gallbladder sarcomatoid carcinoma: Seven case reports
Qin Q, Liu M, Wang X
- 3890** Surgical strategy used in multilevel cervical disc replacement and cervical hybrid surgery: Four case reports
Wang XF, Meng Y, Liu H, Hong Y, Wang BY
- 3903** Diagnosis and treatment of an elderly patient with 2019-nCoV pneumonia and acute exacerbation of chronic obstructive pulmonary disease in Gansu Province: A case report
He TP, Wang DL, Zhao J, Jiang XY, He J, Feng JK, Yuan Y
- 3911** Diagnosis and treatment of mixed infection of hepatic cystic and alveolar *echinococcosis*: Four case reports
A JD, Chai JP, Wang H, Gao W, Peng Z, Zhao SY, A XR

ABOUT COVER

Editorial board member of World Journal of Clinical Cases, Dr. Elia de Maria is Adjunct Professor of Arrhythmology Lab in the Cardiology Unit, Ramazzini Hospital in Carpi, Italy. He graduated in Medicine and Surgery from the University of Napoli in 1999, continuing on to obtain specialization in Cardiology in 2003. He also holds the distinction of High Degree Master in Electrophysiology and Cardiac Stimulation. Since 2005, he has practiced as a Permanent Consultant Cardiologist in the Italian Public Hospitals, and since 2015 as an External Contract Professor in the Faculty of Medicine and Surgery of University of Verona. His clinical and research interests encompass pharmacological therapy in acute and chronic cardiac conditions, temporary and definitive pacing, thoracentesis and pericardiocentesis, and hemodynamic monitoring. (L-Editor: Filipodia)

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 indexed in Science Citation Index Expanded (also known as SciSearch®), Journal Citation Reports/Science Edition, PubMed, and PubMed Central. The 2020 Edition of Journal Citation Reports® cites the 2019 impact factor (IF) for WJCC as 1.013; IF without journal self cites: 0.991; Ranking: 120 among 165 journals in medicine, general and internal; and Quartile category: Q3.

RESPONSIBLE EDITORS FOR THIS ISSUE

Production Editor: Yan-Xia Xing; Production Department Director: Yun-Xiaojuan Wu; 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

Semimonthly

EDITORS-IN-CHIEF

Dennis A Bloomfield, Sandro Vento, Bao-Gan Peng

EDITORIAL BOARD MEMBERS

<https://www.wjgnet.com/2307-8960/editorialboard.htm>

PUBLICATION DATE

September 6, 2020

COPYRIGHT

© 2020 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>

Traumatic neuroma of remnant cystic duct mimicking duodenal subepithelial tumor: A case report

Dong-Hwan Kim, Ji-Ho Park, Jin-Kyu Cho, Jung-Wook Yang, Tae-Han Kim, Sang-Ho Jeong, Young-Hye Kim, Young-Joon Lee, Soon-Chan Hong, Eun-Jung Jung, Young-Tae Ju, Chi-Young Jeong, Ju-Yeon Kim

ORCID number: Dong-Hwan Kim 0000-0002-2151-0048; Ji-Ho Park 0000-0002-2751-7320; Jin-Kyu Cho 0000-0002-6877-7620; Jung-Wook Yang 0000-0002-6398-3667; Tae-Han Kim 0000-0002-5012-7208; Sang-Ho Jeong 0000-0001-9786-5710; Young-Hye Kim 0000-0003-1299-5378; Young-Joon Lee 0000-0002-1735-3385; Soon-Chan Hong 0000-0003-4499-8741; Eun-Jung Jung 0000-0001-8413-613X; Young-Tae Ju 0000-0002-1785-8500; Chi-Young Jeong 0000-0003-4121-6695; Ju-Yeon Kim 0000-0002-5846-7522.

Author contributions: All authors equally contributed to this paper.

Informed consent statement: We have obtained the Informed consent statement from the patient.

Conflict-of-interest statement: All authors have no any conflicts of interest.

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

Dong-Hwan Kim, Ji-Ho Park, Jin-Kyu Cho, Tae-Han Kim, Sang-Ho Jeong, Young-Hye Kim, Young-Joon Lee, Soon-Chan Hong, Eun-Jung Jung, Young-Tae Ju, Chi-Young Jeong, Ju-Yeon Kim, Department of Surgery, Gyeongsang National University College of Medicine, Gyeongsang National University Hospital, Jinju 52727, South Korea

Jung-Wook Yang, Department of Pathology, Gyeongsang National University College of Medicine, Gyeongsang National University Hospital, Jinju 52727, South Korea

Corresponding author: Ji-Ho Park, MD, Assistant Professor, Department of Surgery, Gyeongsang National University College of Medicine, Gyeongsang National University Hospital, 79 Gangnam-ro, Jinju 52727, South Korea. goodgsdr@gmail.com

Abstract

BACKGROUND

Gastrointestinal subepithelial tumors (GSTs), incidentally detected during upper gastrointestinal (GI) endoscopy, may be lesions derived from the GI wall or may be caused by compression from external organs. In general, traumatic neuroma is a benign nerve tumor that results from postoperative nerve injury, occurring in the bile duct as one of the complications after cholecystectomy. This is the first case report demonstrating that neuroma of the cystic duct can be incorrectly perceived as a duodenal subepithelial tumor by compressing the duodenal wall.

CASE SUMMARY

We report the case of a 72-year-old man with traumatic neuroma of the cystic duct after cholecystectomy. This tumor was mistaken for a duodenal subepithelial tumor on preoperative upper GI endoscopy and endoscopic ultrasonography due to external compression of the GI wall. The patient had no symptoms, and his laboratory test results were normal. However, in a series of follow-up endoscopies, the tumor was found to have grown in size, so it was surgically resected. The lesion was completely removed by laparoscopic endoscopic cooperative surgery. The patient was discharged on postoperative day 7 without complications.

CONCLUSION

Traumatic neuroma of the cystic duct can be mistaken for GSTs in GI endoscopy.

Key words: Case report; Neuroma; Tumor; Endoscopy; Laparoscopy; Cholecystectomy

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: <http://creativecommons.org/licenses/by-nc/4.0/>

Manuscript source: Unsolicited
manuscript

Received: May 23, 2020

Peer-review started: May 23, 2020

First decision: June 13, 2020

Revised: June 22, 2020

Accepted: August 22, 2020

Article in press: August 22, 2020

Published online: September 6,
2020

P-Reviewer: Ghnam WM, Morelli
L, Perrotti S

S-Editor: Ma YJ

L-Editor: A

P-Editor: Liu JH



©The Author(s) 2020. Published by Baishideng Publishing Group Inc. All rights reserved.

Core tip: Traumatic neuroma of the cystic duct is rare. In these cases; we have shown that this tumor can be mistaken for gastrointestinal subepithelial tumors (GSTs) by compression of the gastrointestinal wall. Abdominal computed tomography reports and patients' medical history need to be considered before choosing surgical ablation of GSTs. In addition, it is recommended to consider laparoscopy and endoscopy cooperative surgery when surgically resecting a gastroduodenal subepithelial tumor.

Citation: Kim DH, Park JH, Cho JK, Yang JW, Kim TH, Jeong SH, Kim YH, Lee YJ, Hong SC, Jung EJ, Ju YT, Jeong CY, Kim JY. Traumatic neuroma of remnant cystic duct mimicking duodenal subepithelial tumor: A case report. *World J Clin Cases* 2020; 8(17): 3821-3827

URL: <https://www.wjgnet.com/2307-8960/full/v8/i17/3821.htm>

DOI: <https://dx.doi.org/10.12998/wjcc.v8.i17.3821>

INTRODUCTION

A gastrointestinal subepithelial tumor (GST) is defined as a mass that arises from outside the gastrointestinal (GI) wall or from layers other than the submucosa (lamina propria to muscularis propria)^[1]. According to several previous studies, GSTs are found in 0.36%-1.94% of upper GI endoscopy procedures depending on patient characteristics^[2,3]. Although GSTs can cause GI symptoms such as abdominal pain, bleeding, GI tract obstruction, and weight loss, most patients with GSTs have no symptoms or signs specific to the disease, and GSTs are generally incidental findings during upper GI endoscopy^[4]. The prevalence of GST has been increasing due to endoscopic screening for medical examinations^[3,4]. The indication for surgical resection is symptomatic GST, histologically diagnosed as a malignant or potentially malignant tumor such as a gastrointestinal stromal tumor (GIST) or neuroendocrine tumor. The size of GST is more than 5 cm or is increasing^[2,3].

Traumatic neuroma (TN) is a non-neoplastic proliferation at the site of nerve injury and is a known complication of surgery. It was reported in a previous study that TNs are found in autopsies of up to 10% of patients who underwent cholecystectomy^[6]. It can also occur in the bile duct after open or laparoscopic cholecystectomy, or after biopsy by cholangiography^[7,8]. Some patients with TN are diagnosed with acute cholangitis, with symptoms such as right upper quadrant pain and jaundice^[9]. In addition, elevated CA 19-9 levels can be detected on laboratory findings, even though it is a benign lesion^[10]. However, most patients do not have clinical symptoms or signs^[11].

Here, we present the case of a 72-year-old man with TN of the cystic duct after cholecystectomy that was mistaken for a GST on upper GI endoscopy and endoscopic ultrasonography (EUS) before surgical resection. In addition, we discuss laparoscopic endoscopic cooperative surgery for duodenal neoplasms (D-LECS).

CASE PRESENTATION

Chief complaints

A 72-year-old man visited our outpatient clinic because of a duodenal subepithelial tumor (DSET) seen on upper gastrointestinal endoscopy during a medical checkup at another hospital.

History of present illness

The DSET was an incidental finding during an upper GI endoscopy procedure performed on the patient 6 years ago, and since then, the patient has been regularly followed-up at local clinics.

History of past illness

He had a history of abdominal surgery that included a cholecystectomy performed 30 years ago because of abdominal trauma.

Physical examination

There were no special findings on physical examination, and the patient had no upper abdominal symptoms.

Laboratory examinations

The results of his laboratory test, which included tests for tumor markers, were normal.

Imaging examinations

On endoscopy, a round, elevated mass, approximately 2 cm in size, was found in the duodenal bulb. On comparing the current size of the lesion on endoscopy 6 years ago, it was suspected that the lesion had increased in size (Figure 1A).

Further diagnostic workup

We performed EUS and contrast-enhanced computed tomography (CT) to identify the tumor. On EUS, an 18 mm hypoechoic mass was found in the muscularis propria layer of the duodenal wall (Figure 1B). On CT, a 1.4 cm mass was observed near the duodenal wall and the cystic duct stump, and a round cyst was seen along the side (Figures 1C and D). It was difficult to determine if the lesion originated from the duodenal wall or from the cystic duct. Although the patient did not have any symptoms, such as pain, jaundice, or weight loss, and the results of laboratory tests, which included tests for tumor markers, were normal, we decided to surgically resect the tumor because serial follow-up endoscopy showed that the tumor had increased in size.

FINAL DIAGNOSIS

Based on the surgical resection of the tumor, microscopic examination of the specimen revealed spindle cell proliferation arranged in short bundles and intervening cleft artifacts. Prominent palisading was not found, and spindle cells were positive for S100 protein (Figure 2A and B). The pathological diagnosis was neuroma of the remnant cystic duct.

TREATMENT

Under general anesthesia and using the laparoscopic approach, we accessed the abdominal cavity. The abdominal cavity had very severe adhesions due to previous surgery, and the pylorus of the stomach and the duodenal bulb were fully attached to the gallbladder bed. After careful adhesiolysis and dissection of the gastroduodenal ligament, we isolated the mass between the common bile duct and the duodenal wall (Figure 3A). It was difficult to visually determine the origin of the mass. We performed D-LECS to remove the lesion while minimizing injury to adjacent organs.

An intraoperative endoscope was inserted into the duodenum to determine the exact location of the lesion. The wall around the lesion was incised using an insulation-tipped electrosurgical knife so that the lesion could be examined under the laparoscope (Figure 3B). The duodenal wall and the lesion were resected circumferentially using an ultrasonically activated device, and primary repair of the duodenal wall defect was performed using the laparoscopic barbed suture. After resection of the mass and duodenal wall, en-block resection of the mass and cystic duct origin was performed as the mass could not be resected separately from the cystic duct stump (Figures 3C and D). Frozen biopsy of the specimen (Figure 2C and D) was performed. The result of the frozen biopsy was not DSET but the TN of the cystic duct. Finally, endoscopy was performed to ensure that the defect was properly closed and that there were no immediate complications such as bleeding or stricture.

OUTCOME AND FOLLOW-UP

The patient was discharged on postoperative day 7 with no complications. During the 1-month follow-up period, the patient had no particular symptoms. We are going to have a follow-up abdomen CT after 3-mo.

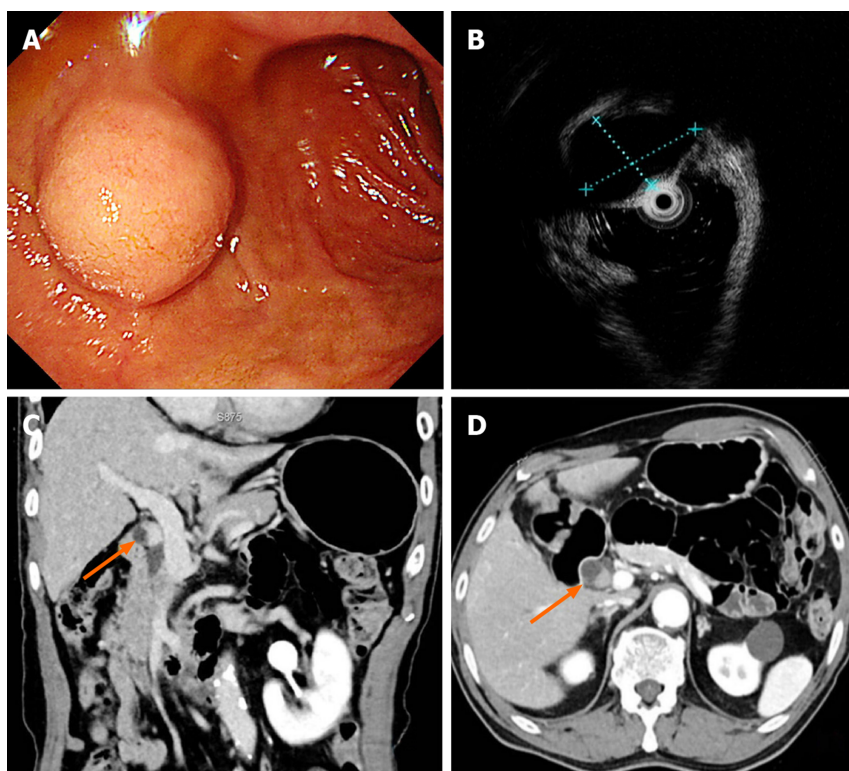


Figure 1 Preoperative tumor evaluation. A: Upper gastrointestinal endoscopy showing a lesion protruding into the lumen of the duodenal bulb; B: Endoscopic ultrasonography showing a hypoechoic lesion 1.8 cm in size; C: Coronal view of abdominal computed tomography (CT) showing a small enhancing nodule 1.4 cm in size (orange arrow) between the cystic duct and the duodenal bulb; D: Axial view of abdominal CT showing the lesion (orange arrow).

DISCUSSION

We report a case of TN of the remnant cystic duct that was mistaken for DSET on upper GI endoscopy.

GST seen on upper GI endoscopy is a protruding lesion or lump with an intact mucosa. It can be divided based on etiology into 2 categories, namely non-neoplastic GST and neoplastic GST. In general, non-neoplastic GST is caused by compression by extra-GI organs, malignant tumors, or benign pathologic lesions^[5,12]. It has been reported in previous studies that further evaluation using techniques such as EUS, EUS-guided fine-needle aspiration, and abdominal CT is recommended to obtain additional information about the lesion for differential diagnosis^[1,4,5]. In this case, we performed EUS and abdominal CT to obtain more information on the lesion. EUS revealed a hypoechoic mass in the muscularis propria layer of the duodenal wall, and this finding was considered to be consistent with DSETs. Abdominal computed tomography (CT) revealed a mass between the duodenal bulb and the cystic duct. It was difficult to make an accurate diagnosis due to the discrepancy between EUS and abdominal CT findings.

Bile duct neuroma is a rare lesion caused by trauma secondary to cholecystectomy, and it is found in the autopsies of up to 10% of patients who underwent cholecystectomy^[6]. It has been reported that bile duct neuroma occurs between several months to 40 years after cholecystectomy, and most patients with bile duct neuroma have no symptoms^[11]. Our patient underwent cholecystectomy 30 years ago, and the lesion was discovered in our patient by accident even though he had no symptoms.

In a retrospective study of patients with small (< 2 cm in size) GSTs who underwent surgery due to an increase in the size of the lesions, the diagnosis was GIST in > 90% of the patients and benign schwannoma in < 10% of the patients^[13]. Therefore, it is recommended to resect GSTs that increase in size^[5,13]. Due to similarities in clinical presentation such as intermittent symptoms and jaundice, cholangiocarcinoma is considered in the differential diagnosis of bile duct neuroma^[7,11]. Therefore, surgery is indicated in most cases to confirm the diagnosis^[6,11,14]. If the duodenal wall is the origin of the lesion, an increase in size is observed, and if the origin of the lesion is the cystic duct, it should be distinguished from cholangiocarcinoma. For this reason, we recommended surgical resection of the lesion in our patient.

We performed D-LECS to surgically resect the lesion. Since Hiki *et al*^[15,16] described

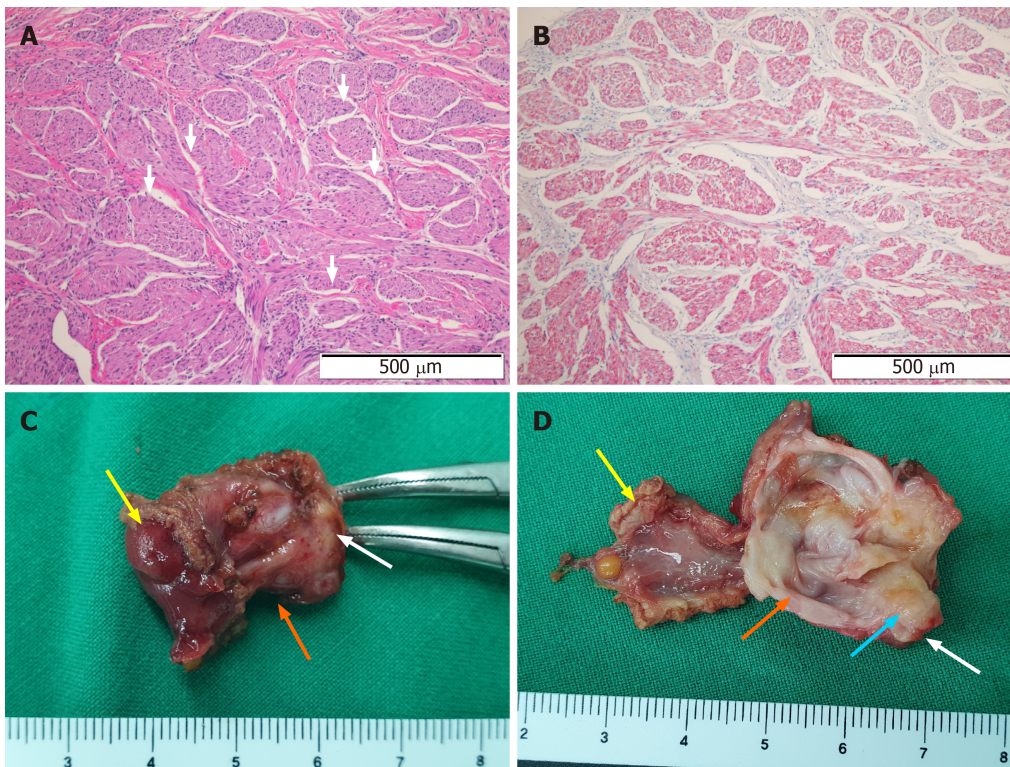


Figure 2 Histological findings of tumor and specimen. A: Microscopic view of a neuroma showing spindle cell proliferation arranged in short bundles and intervening cleft artifact (white arrows, hematoxylin and eosin staining; magnification x 200); B: Lesion tests positive for S100 protein; C: Macroscopic findings of resected duodenal wall (yellow arrow), lesion (orange arrow), and cystic duct (white arrow); D: Incised specimen showing a hard mass (blue arrow) with the cystic portion (orange arrow) adjacent to the duodenal wall (yellow arrow) and the cystic duct (white arrow).

laparoscopic endoscopic cooperative surgery (LECS) for gastric SETs, many surgeons have used this procedure. It has been reported that LECS is safe and suitable for patients with gastric SETs. It has also been reported in some studies that LECS was used to treat patients with duodenal lesions (*i.e.*, D-LECS) and that it is a safe and feasible procedure^[17-19]. We performed D-LECS on our patient, and he was discharged without complications.

A limitation in this case report is our inability to find a single or specific diagnostic method to identify TN or to distinguish TN from GST. However, a single case report is insufficient to achieve this. Further studies with more patients with TN will be needed.

CONCLUSION

It is known from numerous reports in medical literature that external compression can result in various medical conditions that mimic GST. We have shown in this case that TN can result in external compression of the GI wall. It has been reported that EUS can differentiate GST from other lesions caused by external compression. However, for accurate diagnosis of GST, EUS imaging alone is not recommended because EUS has a low accuracy rate of diagnosis for GST (30.8%-66.7%)^[5,20,21]. Therefore, when determining the surgical treatment of GST, information on the lesions obtained using different diagnostic methods and information on patient medical history should be comprehensively considered.

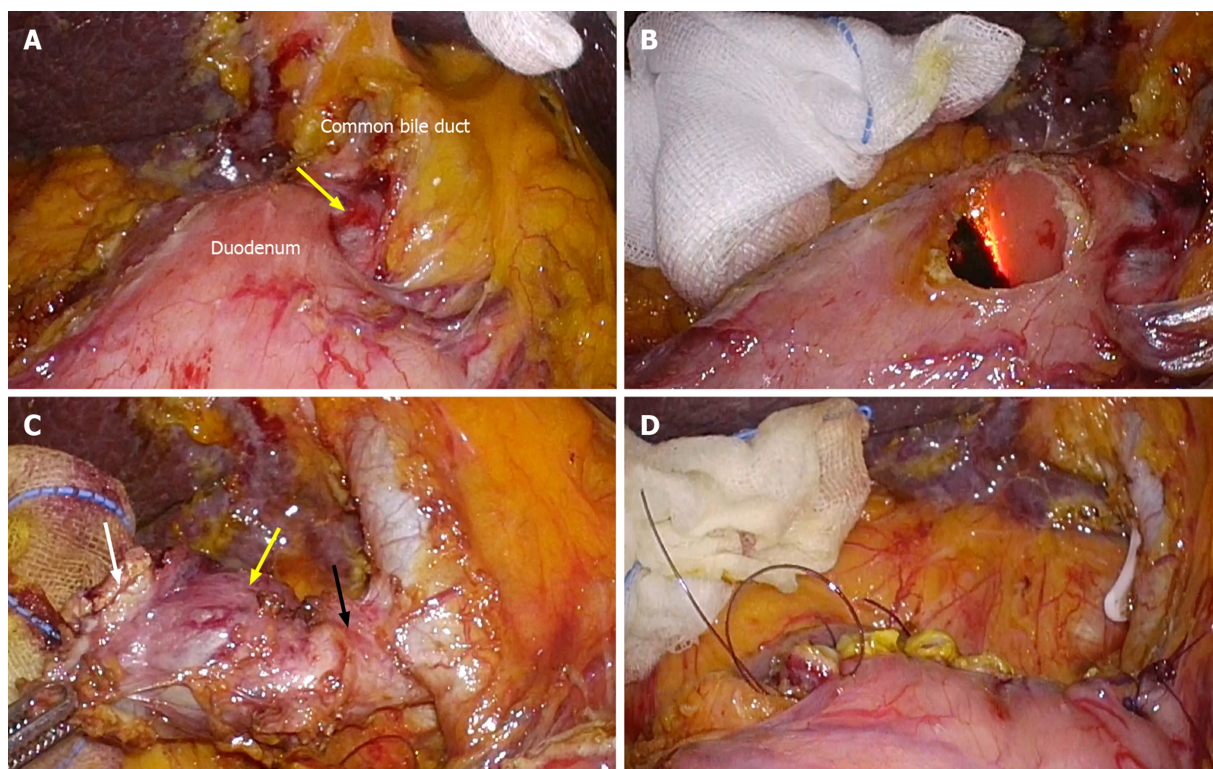


Figure 3 Operative procedure of laparoscopic endoscopic cooperative surgery for duodenal neoplasms. A: Lesion (yellow arrow) between the duodenal bulb and common bile duct; B: Partial perforation of the duodenal wall using insulation-tipped electrosurgical knife during endoscopy; C: Lesion (yellow arrow) is difficult to identify between the resected duodenal wall (white arrow) and cystic duct (black arrow); D: View after resection of lesion and repair of duodenal wall.

REFERENCES

- Humphris JL, Jones DB. Subepithelial mass lesions in the upper gastrointestinal tract. *J Gastroenterol Hepatol* 2008; **23**: 556-566 [PMID: 18086121 DOI: 10.1111/j.1440-1746.2007.05232.x]
- Song JH, Kim SG, Chung SJ, Kang HY, Yang SY, Kim YS. Risk of progression for incidental small subepithelial tumors in the upper gastrointestinal tract. *Endoscopy* 2015; **47**: 675-679 [PMID: 25961444 DOI: 10.1055/s-0034-1391967]
- Hedenbro JL, Ekelund M, Wetterberg P. Endoscopic diagnosis of submucosal gastric lesions. The results after routine endoscopy. *Surg Endosc* 1991; **5**: 20-23 [PMID: 1871670 DOI: 10.1007/bf00591381]
- Kim SG, Song JH, Hwang JH. Current Status of Endoscopic Ultrasonography in Gastrointestinal Subepithelial Tumors. *Clin Endosc* 2019; **52**: 301-305 [PMID: 31286747 DOI: 10.5946/ce.2019.024]
- Nishida T, Kawai N, Yamaguchi S, Nishida Y. Submucosal tumors: comprehensive guide for the diagnosis and therapy of gastrointestinal submucosal tumors. *Dig Endosc* 2013; **25**: 479-489 [PMID: 23902569 DOI: 10.1111/den.12149]
- Pickens A, Vickers SM, Brown KL, Reddy VV, Thompson JA. An unusual etiology of biliary hilar obstruction and the potential role of acidic fibroblast growth factor in the development of a biliary neuroma. *Am Surg* 1999; **65**: 47-51 [PMID: 9915531 DOI: 10.1134/s1070427207080113]
- McCarthy AJ, Karamchandani DM, Chetty R. Neural and neurogenic tumours of the gastroenteropancreaticobiliary tract. *J Clin Pathol* 2018; **71**: 565-578 [PMID: 29419412 DOI: 10.1136/jclinpath-2017-204895]
- Toyonaga H, Taniguchi Y, Inokuma T, Imai Y. Traumatic bile duct neuroma diagnosed by boring biopsy with cholangioscopy. *Gastrointest Endosc* 2018; **87**: 1361-1362 [PMID: 29102735 DOI: 10.1016/j.gie.2017.10.015]
- Lalchandani P, Korn A, Lu JG, French SW, Hou L, Chen KT. Traumatic bile duct neuroma presenting with acute cholangitis: A case report and review of literature. *Ann Hepatobiliary Pancreat Surg* 2019; **23**: 282-285 [PMID: 31501819 DOI: 10.14701/ahbps.2019.23.3.282]
- Hyman J, Wilczynski SP, Schwarz RE. Extrahepatic bile duct stricture and elevated CA 19-9: malignant or benign? *South Med J* 2003; **96**: 89-92 [PMID: 12602726 DOI: 10.1097/01.smj.0000047961.88745.d2]
- Paquette IM, Suriawinata AA, Ornvold K, Gardner TB, Axelrod DA. Neuroma of the bile duct: a late complication after cholecystectomy. *J Gastrointest Surg* 2009; **13**: 1517-1519 [PMID: 19184244 DOI: 10.1007/s11605-009-0814-x]
- Chen TK, Wu CH, Lee CL, Lai YC, Yang SS, Tu TC. Endoscopic ultrasonography to study the causes of extragastric compression mimicking gastric submucosal tumor. *J Formos Med Assoc* 2001; **100**: 758-761 [PMID: 11802535 DOI: 10.1016/s0885-3924(01)00338-4]
- Miyazaki Y, Nakajima K, Kurokawa Y, Takahashi T, Takiguchi S, Miyata H, Yamasaki M, Hirota S, Nishida T, Mori M, Doki Y. Clinical significance of surgery for gastric submucosal tumours with size enlargement during watchful waiting period. *Eur J Cancer* 2013; **49**: 2681-2688 [PMID: 23664093 DOI: 10.1016/j.ejca.2013.05.015]

- 10.1016/j.ejca.2013.04.006]
- 14 **Ueno Y**, Ikeda K, Maehara M, Sakaida N, Omura N, Kurokawa H, Sawada S. Traumatic neuroma of the bile duct. *Abdom Imaging* 2008; **33**: 560-562 [PMID: 18360736 DOI: 10.1007/s00261-007-9318-x]
 - 15 **Hiki N**, Yamamoto Y, Fukunaga T, Yamaguchi T, Nunobe S, Tokunaga M, Miki A, Ohyama S, Seto Y. Laparoscopic and endoscopic cooperative surgery for gastrointestinal stromal tumor dissection. *Surg Endosc* 2008; **22**: 1729-1735 [PMID: 18074180 DOI: 10.1007/s00464-007-9696-8]
 - 16 **Hiki N**, Nunobe S. Laparoscopic endoscopic cooperative surgery (LECS) for the gastrointestinal tract: Updated indications. *Ann Gastroenterol Surg* 2019; **3**: 239-246 [PMID: 31131352 DOI: 10.1002/ags3.12238]
 - 17 **Sakon M**, Takata M, Seki H, Hayashi K, Munakata Y, Tateiwa N. A novel combined laparoscopic-endoscopic cooperative approach for duodenal lesions. *J Laparoendosc Adv Surg Tech A* 2010; **20**: 555-558 [PMID: 20578925 DOI: 10.1089/lap.2009.0392]
 - 18 **Irino T**, Nunobe S, Hiki N, Yamamoto Y, Hirasawa T, Ohashi M, Fujisaki J, Sano T, Yamaguchi T. Laparoscopic-endoscopic cooperative surgery for duodenal tumors: a unique procedure that helps ensure the safety of endoscopic submucosal dissection. *Endoscopy* 2015; **47**: 349-351 [PMID: 25479560 DOI: 10.1055/s-0034-1390909]
 - 19 **Ojima T**, Nakamori M, Nakamura M, Hayata K, Katsuda M, Takifuji K, Yamaue H. Laparoscopic and Endoscopic Cooperative Surgery Versus Endoscopic Submucosal Dissection for the Treatment of Low-Risk Tumors of the Duodenum. *J Gastrointest Surg* 2018; **22**: 935-940 [PMID: 29352442 DOI: 10.1007/s11605-018-3680-6]
 - 20 **Karaca C**, Turner BG, Cizginer S, Forcione D, Brugge W. Accuracy of EUS in the evaluation of small gastric subepithelial lesions. *Gastrointest Endosc* 2010; **71**: 722-727 [PMID: 20171632 DOI: 10.1016/j.gie.2009.10.019]
 - 21 **Hwang JH**, Saunders MD, Rulyak SJ, Shaw S, Nietsch H, Kimmey MB. A prospective study comparing endoscopy and EUS in the evaluation of GI subepithelial masses. *Gastrointest Endosc* 2005; **62**: 202-208 [PMID: 16046979 DOI: 10.1016/s0016-5107(05)01567-1]



Published by **Baishideng Publishing Group Inc**
7041 Koll Center Parkway, Suite 160, Pleasanton, CA 94566, USA

Telephone: +1-925-3991568

E-mail: bpgoffice@wjgnet.com

Help Desk: <https://www.f6publishing.com/helpdesk>

<https://www.wjgnet.com>

