Asymptomatic gastric adenomyoma and heterotopic pancreas in a patient with pancreatic cancer: A case report and review of the literature

Kun Li, Yan Xu, Nan-Bin Liu, Bao-Min Shi

BACKGROUND
Gastric adenomyoma (GA) is a rare submucosal benign neoplasm that occurs mostly in the gastric antrum and is often misdiagnosed. No standard treatment has been established for this disease in cases of malignancy.

CASE SUMMARY
A 75-year-old woman with a 10-year history of hypertension was admitted to the Emergency Department of our hospital complaining of paroxysmal exacerbation of acute abdominal pain for 1 d with no apparent cause. Enhanced computed tomography and magnetic resonance imaging indicated a mass in the caudal pancreas, cholecystitis, and cholecystic polypus. Gastrointestinal endoscopy showed a mass arising from the gastric antrum. Due to the imaging findings, pancreatic cancer (PC), gastric lesion, cholecystitis, and cholecystic polypus were our primary consideration. Radical pancreatectomy, splenectomy, and cholecystectomy were performed successfully, and the gastric tumor was locally resected. Postoperative paraffin specimens confirmed the diagnosis of caudal PC, GA, and heterotopic pancreas (HP). Unfortunately, the patient died 13 mo later due to PC metastases to the liver, lung, and adrenal glands.

CONCLUSION
GA is a rare benign disease, especially when occurring with HP. It may stem from the same origin as HP. This is the first case report to date of a patient suffering from the simultaneous occurrence of GA, HP, and PC. GA is a lesion that can mimic other benign or malignant gastrointestinal diseases; thus, a definitive diagnosis depends on postoperative pathological biopsy. Although GA and HP are both benign lesions, they should be resected because there is a chance of malignancy. Additional research should be conducted to better understand these submucosal lesions.
A 75-year-old Chinese woman was admitted because of paroxysmal exacerbation of acute abdominal pain for 1 d with no apparent cause. The pain was not responsive to any pain medications. She has not previously complained of nausea, sour regurgitation, or abdominal fullness but did note slight fatigue.

A 75-year-old woman with a diagnosis of pancreatic mass was admitted for surgery. History of present illness

A 75-year-old Chinese woman was admitted because of paroxysmal exacerbation of acute abdominal pain for 1 d with no apparent cause. The pain was not responsive to changes in body position and did not radiate to the other side. The patient did not complain of nausea, sour regurgitation, or abdominal fullness but did note slight fatigue.

Heterotopic pancreas (HP), also known as aberrant pancreas and accessory pancreas, is any isolated pancreatic tissue that grows outside the pancreas itself and has no anatomical connection with the normal pancreas[1]. Gastric adenomyoma (GA), also known as myoepithelial hamartoma, myoglandular hamartoma, adenomyomatous hamartoma, and adenomyosis in the stomach[2], is a rare benign tumor occurring in the submucosal layer of the gastric wall. Over 100 years after the discovery of HP in 1727 by Jean-Schultz[1], GA was first reported by Magnus-Alsleben[3] in 1903, who described it as a lesion that consists of smooth muscle fibers and circular crescent-shaped lumina that are lined with a single-layer of cylindrical epithelium. In 1909, a physician in Germany named Heinrich differentiated gastric HP into three types: Type I, with pancreatic acini and islets; type II, with acini; and type III, with only undifferentiated ducts[4]. He then named type III HP GA, with type III containing proliferated smooth muscle cells and a mucus-excreting epithelium.

GA has a low occurrence rate; only 52 cases have been reported as of 2016, according to Bhardwaj et al[5]. From 2016 on, only eight cases of GA confirmed by pathological biopsy have been reported. These cases were examined by tissue biopsy, which should contain both heterotopic pancreatic acini in the gastric wall and several undifferentiated mucus-secreting ducts lined with columnar or cubic epithelial cells surrounded by overgrown bundles of smooth muscle cells in the outermost layer. There are only 24 cases (including ours) of simultaneous HP and GA confirmed by pathological biopsy reported in the literature. There have been no pathological biopsy reports revealing a combination of HP, GA, and pancreatic cancer (PC).

### Case Presentation

**Chief complaints**

A 75-year-old woman with a diagnosis of pancreatic mass was admitted for surgery.

**History of present illness**

A 75-year-old Chinese woman was admitted because of paroxysmal exacerbation of acute abdominal pain for 1 d with no apparent cause. The pain was not responsive to changes in body position and did not radiate to the other side. The patient did not complain of nausea, sour regurgitation, or abdominal fullness but did note slight fatigue.
History of past illness
The patient had hypertension for the previous 10 years, which was well controlled by drug therapy.

Personal and family history
The patient had a more than 10-year history of hypertension that was under fairly satisfactory control via medication.

Physical examination
Abdominal physical examination showed a flattened belly, normal borborygmus, and epigastric tenderness and rebound pain, with a negative Murphy’s sign.

Laboratory examinations
Blood biochemistry tests revealed the following: Elevated blood amylase (742 U/L; chromatometry reference range: 35-135 U/L), undetectable blood lipase (chromatometry reference range: less than 79 U/L), low albumin (32.2 g/L; reference range: 40-55 g/L), low calcium (2.06 mmol/L; reference range: 2.25-2.75 mmol/L), low platelets (98 × 10^9/L; reference range: 100-300 × 10^9/L), and highly elevated CA242 (over 150 IU/mL; reference range: 0-20 IU/mL), CA50 (289.6 IU/mL; reference range: 0-20 IU/mL), and CA199 (627.4 IU/mL; reference range: 0-37 IU/mL).

Imaging examinations
A plain CT scan showed a mass in the body and tail of the pancreas, with little exudation (Figure 1A). The morphology of the pancreas was disrupted, indicating edema, hyperemia, and fat liquefaction. The stomach appeared normal (Figure 1B). Two days later, contrast-enhanced CT showed a cystic solid mass surrounding splenic vessels in the caudal pancreas, indicating a pancreatic malignant tumor (Figure 2A). Multiple hepatic cysts, cholecystitis, and cholecystic polypus were also detected. The gastric antral wall was found to be thickened (Figure 2B). Gastric endoscopy was performed 3 d later. The images showed chronic superficial and atrophic gastritis, a protruding lesion in the submucosal area of the antrum (Figure 3), and no Helicobacter pylori infection. Contrast MRI was performed the following day and indicated PC (Figure 4A) and uniform thickening of the antral wall (Figure 4B). Due to the aforementioned imaging findings, we decided to perform operations to relieve PC and tried to figure out the nature of the gastric mass intraoperatively.

Pathological result postoperatively
The gastric mass under pathological examination post operation was a gray, solid, and tough nodule measuring 2 cm × 2.2 cm × 1 cm in the pylorus. Immunohistochemical staining showed that the tumor cells were positive for CK8, partially positive for Ki-67, and negative for CD147. Micrography showed multiple multifocal heterotopic pancreatic acini (Figure 5A), mucus-excreting glands such as Brunner’s glands, and undifferentiated ducts surrounded by proliferative smooth muscles in the submucosal layer, which typically indicate GA with HP. The tissue in the other slice showed undifferentiated epithelial cells covered with thickened smooth muscle, indicating GA alone (Figure 5B), with no signs of malignancy. Regarding the 3.5 cm × 2 cm × 3 cm pancreatic mass, distinct dysplasia of the acini and cells arranged in a mass without polarity indicated cancer cells. The nuclei were deeply basophilic, with common karyokinesis, enlarged in size, and increased in number compared to those in normal tissue (Figure 6).

FINAL DIAGNOSIS
The patient was diagnosed with caudal PC, gastric HP, and GA, accompanied by acute pancreatitis, cholecystic polypus, and hypertension.

TREATMENT
The patient underwent radical pancreatectomy, splenectomy, and cholecystectomy, and the gastric tumor was locally resected. During the operation, a mass measuring 4 cm × 4 cm × 3 cm was excised from the tail of the pancreas, and the antral mass was...
Li K et al. A case of gastric adenomyoma

Figure 1 Upper abdominal computed tomography images. A: A lobulated solid mass (orange arrow) in the caudal pancreas invading the splenic pedicle; B: The gastric antrum is full of chyme, and the accurate condition of the gastric wall is not clear (orange arrowhead).

Figure 2 Enhanced upper abdominal computed tomography images. A: A cystic solid mass measuring 3.5 cm × 3 cm × 2 cm in the caudal pancreas (orange arrow) surrounding the splenic vessels; B: Thickening of the antral wall and slight obstruction of the pylorus (orange arrowhead).

Figure 3 Gastric endoscopy revealed a submucosal lesion that arose from the surface of the pylorus. excavated 1 cm away from its rim. Microscopy analysis revealed that the frozen biopsy sample was a benign lesion.
Figure 4 Enhanced upper abdominal magnetic resonance imaging. A: An intensified mass (orange arrow); B: Thickening of the pyloric wall (orange arrowhead).

Figure 5 Histology (HE, 40 × magnification). A: Disorganized pancreatic acini joining together and forming rough structures without islets and separated by bundles of smooth muscle (yellow arrow); the concomitant Brunner’s glands (blue arrow); and the undifferentiated mucus-secreting ducts, somewhat similar to gastric glands (white arrow). B: Typical gastric adenomyoma in another section of the gastric mass (yellow arrow) showing a mucus-secreting duct lined with columnar or cubic epithelial cells and surrounded by proliferating smooth muscle cells without heterotopic pancreas nearby.

Figure 6 Histology (HE, 200 × magnification).

OUTCOME AND FOLLOW-UP

Postoperatively, the patient went through sequential chemotherapy and regular follow-ups. However, she unfortunately died 13 mo postoperatively due to PC metastases to the liver, lung, and adrenal glands (April 2017).
**DISCUSSION**

As described by Choi et al [6] in 2000, gastric submucosal tumors are uncommon lesions (< 2% of surgically resected gastric masses). The most common types are gastrointestinal stromal tumor (GIST), leiomyoma, and gastric lipoma [7]. GA is one of the rarest diseases among gastric submucosal tumors, and its definition is based on pathological classifications. As mentioned before, there have been only 60 cases of GA up to now. In 2017, Emerson et al [7] have reported that 17 of the 571 cases that could not be fully resected by endoscopic submucosal dissection were GA, while these data contained no pathological images. Even if these lesions are indeed GA, as well as those who did not undergo operations and thus had no definitive diagnosis, a consensus has been reached that GA is an uncommon disease [8-10]. GA has occurred in all age groups, from 7 d [8] to 84 years [9]. To some extent, its low occurrence rate is because the majority of these cases are asymptomatic [10-12], however, some GA patients experience epigastric pain and discomfort, with/without nausea [13], vomiting [14], dyspepsia [15], and melena [16]. Concerning small children or infants, the first symptom may be nonbilious vomiting [8,13-14,17-19] or esophageal reflux [20]. Some GA cases are detected by autopsy [20]. Meaningful diagnosis methods include radiographical methods such as barium meal X-ray [21], in which a filling defect in the gastric antrum or pyloric region provides an imaging diagnosis [22,23], CT [4], ultrasound (US) [13], gastrointestinal endoscopy ultrasound [24], and MRI [17]. However, the only confirmatory test for GA is pathological biopsy.

Because of its rare occurrence, GA is typically not considered and can be easily misdiagnosed since it is similar to other benign or malignant gastrointestinal lesions, such as GIST [15,21,25-27], leiomyoma [3,28], gastric carcinoma [29], gastric adenocarcinoma [30], and pyloric stenosis [15,14,17], making the differential diagnosis challenging.

Although GA is indeed a rare submucosal disease, other diseases can accompany GA, such as HP. As previously mentioned, there have been only 20 known cases of the simultaneous occurrence of HP and GA. Among these cases (Table 1), no reports have identified any differences in the occurrence rate by sex, age, or district. Most of these patients experienced pain or discomfort, and only a few cases were detected by physical examination. Although most of the patients had benign lesions, two experienced malignant transformation. All of the biopsy tissues were collected from the pyloric antrum (either the lesser or greater curvature). There are several discussions about the source of both lesions, apart from Heinrich’s 1909 definition.

As proposed by Erberich et al [2] in 2000, HP in the stomach is thought to be derived from the dorsal anlage. As shown in the pathological images, HP appears to be located on the surface of the polyp, accompanied by Brunner’s glands and GA in the lower layers, as if the deep-seated lesion is triggered by exocrine pancreatic acini. However, even if HP secretes hormones and fluid, these substances can only be released into the gastric lumen, without affecting smooth muscle cells and undifferentiated mucus-secreting cells in the submucosa. In another position described by Takeyama et al [18] in 2007, GA was found to be a component of hamartoma without well-differentiated pancreatic tissue and an independent lesion rather than a part of HP. However, we found that GA can accompany HP, but it can also develop alone, as depicted in Figure 5. In summary, GA can be described as an independent lesion (i.e., without HP) or with local inflammatory changes caused by HP.

Thus, we approve Heinrich’s definition. GA and HP are, in fact, the same lesion. Differences in cytology, histology, and biological behavior exist because different parts of the primary gut remain in situ (Figure 7). In the fourth week of embryonic development, the pancreas derives from both the ventral and dorsal antrum [31], and some parts of the primary pancreatic cells that remain are affected by the gastric local microenvironment and develop into different tissues, including the original pancreatic glands, gastric glands, Brunner’s glands, undifferentiated glands, and proliferating smooth muscle cells. Different tissues exist because of the different phases at which these cells leave from the original site and the different microenvironments. The proliferating smooth muscle and undifferentiated mucus-secreting epithelial cells converge, perhaps because they are in the same differentiation state. In a word, HP and GA stem from the same origin.

A standard treatment for GA and HP has not been established. In the 20 patients with GA and HP, except for those with cancerous lesions, the operative methods included endoscopic or laparoscopic mass resection, partial gastrectomy, or subtotal and total gastrectomy depending on the severity of the disease and the general condition of the patient. However, all lesions were successfully removed, and symptoms were relieved.
### Table 1 Characteristics of patients with heterotopic pancreas and gastric adenomyoma

| Ref.         | Year  | Age | Sex | Main complaint                                      | Diagnostic method | Clinical diagnosis | Surgery                                |
|--------------|-------|-----|-----|----------------------------------------------------|-------------------|--------------------|-----------------------------------------|
| Bedir et al  | 2018  | 26  | F   | Occasionally detected                             | Radiography       | GA                 | Mini-gastric bypass; subtotal gastrectomy |
| Campbell[35] | 1949  | 37  | F   | Indigestion and discomfort                        | Radiography       | Gastric benign tumor | Partial gastrectomy                    |
| Eisenberger et al[21] | 2001  | 21  | F   | Emesis, heartburn, mid/epigastric pain, and weight loss | Radiography endoscopy | Benign GIST        | Mini-laparotomy; mass dissection       |
| Emerson et al[7] | 2004  | 52  | M   | Epigastric and left upper quadrant pain, postprandial emesis, bloating, abdominal distention | Endoscopy         | N/A                | 50% gastrectomy with vagotomy          |
| Faigel et al[36] | 2001  | 34  | F   | Dyspepsia and nausea                              | Radiography endoscopy | N/A                | Endoscopic mucosal resection           |
| Floros et al[37] | 1982  | 29  | M   | Intermittent epigastric pain                      | Radiography       | N/A                | Endoscopic wedge resection             |
| Hauibrich[16] | 1955  | 60  | F   | Melena                                            | Radiography       | Early malignant neoplasm | Subtotal gastrectomy                  |
| Kagawa et al[38] | 2007  | 26  | F   | Intermittent severe abdominal pain, high fever    | Radiography endoscopy | Benign submucosal tumor | Laparoscopic wedge resection; pyloroplasty |
| Kamrani et al[39] | 2019  | 15  | F   | Nausea and vomiting                               | Radiography endoscopy | N/A                | Distal gastrectomy with gastroduodenostomy |
| Keshgejian et al[28] | 1978  | 30  | F   | Left upper quadrant pain                          | Radiography       | Leiomyoma           | Mass dissection                        |
| Kerkz et al[15] | 2011  | 5yr | M   | Intermittent epigastric pain                      | Radiography       | N/A                | Distal gastrectomy, cyst excision with gastroduodenostomy |
| Nabi et al[26] | 2012  | 35  | M   | Intermittent epigastric pain and vomiting         | Radiography endoscopy | GIST               | Hemigastrectomy followed by gastrojejunal anastomosis |
| Portale et al[29] | 2007  | 71  | M   | Recurrent duodenal ulcer                          | Radiography endoscopy | Gastric carcinoma  | Subtotal gastrectomy with Bill resection |
| Reardon et al[40] | 1999  | 31  | F   | Acute epigastric pain                             | Radiography endoscopy | Leiomyoma or a lipoma | Laparoscopic resection with an end-to-end gastroduodenostomy |
| Rhim et al[8] | 2013  | 1wk | M   | Persistent vomiting                               | Radiography       | N/A                | Antrectomy with Billroth I anastomosis |
| Song et al[27] | 2004  | 35  | M   | Occasionally detected                             | Radiography endoscopy | GIST               | Wedge resection                        |
| Zarling et al[41] | 1981  | 25  | F   | Epigastric discomfort and early satiety           | Radiography endoscopy | N/A                | Distal antrectomy                      |
| Vandelli et al[42] | 1993  | 42  | F   | Intermittent postprandial epigastric pain, nausea, and vomiting | Endoscopy         | N/A                | Polypectomy and Billroth II gastrectomy |
| Erberich et al[2] | 2000  | 48  | M   | Epigastric pain and vomiting                      | Radiography endoscopy | Gastric polyps     | Local excision of both lesions         |
| Janota et al[23] | 1966  | 27  | M   | Epigastric pain                                   | N/A               | Peptic ulcer       | Partial gastrectomy; closure of the duodenal stump |
| Lasser et al[22] | 1977  | 35  | M   | Discomfort                                        | Radiography       | N/A                | Subtotal gastrectomy                  |
| Stewart et al[20] | 1984  | 81  | M   | Renal failure, anemia, and melena                 | N/A               | N/A                | N/A                                    |
|              | 1988  | 53  | M   | Discomfort                                        | Radiography       | N/A                | Endoscopic resection                  |

1 Diagnostic methods include radiographic methods such as ultrasound, X-ray, computed tomography, and magnetic resonance imaging, as well as endoscopic methods such as gastroenteroscopy.

2 Clinical diagnosis made before operation.

3 Detected by regular body examination or other abdominal surgeries.

4 No data. GA: Gastric adenomyoma; GIST: Gastrointestinal stromal tumor; N/A: Not applicable.

Currently, more precise methods aided by the innovation of surgical instruments,
Nevertheless, the prognosis depends on the malignant tumor on the caudal pancreas. If it spreads to other organs and reoccurs, the patient’s chances of survival could be extremely low.

CONCLUSION

GA is a rare submucosal benign lesion that typically occurs in the gastric antrum and seldom occurs with HP. This report describes a patient diagnosed with PC along with asymptomatic GA and HP. HP and GA are actually the same lesion, but differences between the two exist because of the various differentiation statuses and local microenvironments. We investigated a previous report of 20 patients with simultaneous HP and GA and found that the surgical method used is important in the diagnosis and treatment of GA.

ACKNOWLEDGEMENTS

We would like to thank Yang GL, Liao JR, and Wang ZW for contributing to the data collection and image analysis.

REFERENCES

1 Rezvani M, Menias C, Sandrasegaran K, Olpin JD, Elsayes KM, Shaaban AM. Heterotopic Pancreas: Histopathologic Features, Imaging Findings, and Complications. Radiographics 2017; 37: 484-499 [PMID: 28287935 DOI: 10.1148/rg.2017160091]
2 Erberich H, Handt S, Mittermayer C, Tietze L. Simultaneous appearance of an adenomyoma and pancreatic heterotopia of the stomach. Virchows Arch 2000; 436: 172-174 [PMID: 10755609 DOI: 10.1007/PL00008218]
3 Magnus-Alsleben E. Adenomyome des Pylorus. Hysiologie Und Für Klinische Medizin 1903; 173: 137-155 [DOI: 10.1007/BF01926938]
4 Duran Alvarez MA, Gómez López JR, Guerra Garijo T. Gastric Adenomyoma: The Unexpected Mimicker. GE Port J Gastroenterol 2017; 24: 198-202 [PMID: 29255751 DOI: 10.1159/0004553302]
5 Bhardwaj S, Sinha S, Kundu R, Kaur R. Gastric adenomyoma: a case report. Int Surg J 2018; 5: 1587 [DOI: 10.18203/2349-2902.isj20181154]
6 Choi YB, Oh ST. Laparoscopy in the management of gastric submucosal tumors. Surg Endosc 2000; 14: 741-745 [PMID: 10954821 DOI: 10.1007/s004640000148]
7 Emerson L, Layfield LJ, Rohr LR, Dayton MT. Adenocarcinoma arising in association with gastric heterotopic pancreas: A case report and review of the literature. J Surg Oncol 2004; 87: 53-57 [PMID: 15221920 DOI: 10.1002/jso.20087]
8 Rhim JH, Kim WS, Choi YH, Cheon JE, Park SH. Radiological findings of gastric adenomyoma in a neonate presenting with gastric outlet obstruction. Pediatr Radiol 2013; 43: 628-630 [PMID:...
23502729 DOI: 10.1007/s00247-012-2521-0

9 Delvaux S, Ectors N, Geboes K, Desmet V. Gastric gland heterotopia with extensive lymphoid stroma: a gastric lymphoepithelial cyst. Am J Gastroenterol 1996; 91: 599-601 [PMID: 8633519]

10 Bedir R, Yilmaz R, Kalcans, Ozdemir O. Gastric adenomyoma determined incidentally during sleeve gastrectomy: A case report. J Clin Anal Med 2018 [DOI: 10.4374/ICAM.5740]

11 Park SH, Kim J, Kim M, Jung EH, Kim HK, Kim SS, Cho YS. Adenomyoma in the Body of Stomach Presenting as a Pedunculated Polyp Treated by Endoscopic Mucosal Resection. Korean J Helicobacter Upper Gastrointestinal Res 2016; 16: 31 [DOI: 10.7704/kjheug.2016.16.1.31]

12 Lee H, Jeang YJ, Heo J. A Rare Case of Cystic Subepithelial Tumor in the Stomach: Gastric Adenomyoma. J Korean Soc Radiol 2015; 73: 389-392 [DOI: 10.3348/jkjr.2015.73.6.389]

13 Oviedo Gutiérrez M, Amat Valero A, Montalvo Ávalos C, Fernández García L, Lara Cárdenas DC, Barnes Marahón S, Granell Suárez C, Vega Mata N, López López AJ, González Guerrero M, Álvarez Muñoz V. [Infantile hypertrophic pyloric stenosis or gastric adenomyoma? Cir Pediatr 2015; 28: 153-155 [PMID: 2777531]

14 Aljahdali A, Oviedo A, Blair GK. Gastric hamartoma of the pylorus in an infant. J Pediatr Surg 2012; 47: E29-E31 [PMID: 22813828 DOI: 10.1016/j.jpedsurg.2012.03.047]

15 Kerkez MD, Lekić NS, Culačić DM, Razonović ZJ, Ignjatović II, Lekić DD, Mića DD. Gastric adenomyoma. Vojnosanit Pregl 2011; 68: 519-522 [PMID: 21818921] DOI: 10.2298/VSP1106519K

16 Haubrich WS. Myo-epithelial hamartoma of the stomach. Gastroenterology 1955; 28: 1027-1033 [PMID: 14380612 DOI: 10.1016/S0016-5085(55)80118-7]

17 Sánchez García S, Rubio Solís D, Anes González G, González Sánchez S. [Gastric adenomyoma clinically simulating hypertrophic pyloric stenosis]. Radiologia 2016; 58: 148-151 [PMID: 26837724 DOI: 10.1016/j.rx.2015.12.006]

18 Takeyama J, Sato T, Tanaka H, Nio M. Adenomyoma of the stomach mimicking infantile hypertrophic pyloric stenosis. J Pediatr Surg 2007; 42: E11-E12 [PMID: 18022419 DOI: 10.1016/j.jpedsurg.2007.07.050]

19 Bush WH Jr, Hall DG, Ward BH. Adenomyosis of the gastric antrum in children. Radiology 1974; 111: 179-181 [PMID: 4831601 DOI: 10.1148/111.1.179]

20 Stewart TW Jr, Mills LR. Adenomyoma of the stomach. South Med J 1984; 77: 1337-1338 [PMID: 6484660 DOI: 10.1097/00007671-198410000-00037]

21 Eisenberger CF, Kroop A, Langwieler TE, Gocht A, Izbicki JR, Kneefel WT. Heterotopic pancreatitis: gastric outlet obstruction due to an intramural pseudocyst and hamartoma. Z Gastroenterol 2002; 40: 259-262 [PMID: 11961736 DOI: 10.1055/s-2002-25146]

22 Lasser A, Koufman WB. Adenomyoma of the stomach. Am J Dig Dis 1977; 22: 960-969 [PMID: 91136] DOI: 10.1016/BF01076194]

23 Janota I, Smith PG. Adenomyoma in the pylorus. Gut 1966; 7: 194-199 [PMID: 5932897 DOI: 10.1136/gut.7.2.194]

24 Chu K-. Endosonographic appearance of gastric adenomyoma. Endoscopy 2002; 34: 682 [PMID: 12173100 DOI: 10.1055/s-2002-33248]

25 Anand S, Dhua AK, Bhattachar V, Agarwala S, Kandasamy D, Kakkar A. Gastric Adenomyosis: A Rare Cause of Pyloric Mass in Children. J Indian Assoc Pediatr Surg 2020; 25: 172-174 [PMID: 32581446 DOI: 10.4103/ija.ps.44_19]

26 Nabi J, Authoy FN, Akhter SM. Atypical presentation of myoepithelial hamartoma in the antrum of the stomach, mimicking a gastrointestinal stromal tumor: a case report. J Med Case Rep 2012; 6: 382 [PMID: 23146179 DOI: 10.1186/1752-1947-6-382]

27 Song DE, Kwon Y, Kim KR, Oh ST, Kim JS. Adenocarcinoma arising in gastric heterotopic pancreas: a case report. J Korean Med Sci 2004; 19: 145-148 [PMID: 14966359 DOI: 10.3346/jkms.2004.19.1.145]

28 Keshghevian AA, Enterline HT. Gardner's syndrome with duodenal adenomas, gastric adenomyoma and thyroid papillary-- follicular adenocarcinoma. Dis Colon Rectum 1978; 21: 255-260 [PMID: 657934 DOI: 10.1016/BF02586699]

29 Portale TR, Mosca F, Vicari S, Pulvirenti G, Ficheria S, Salomone E, Puleo S. Myoepithelial hamartoma of the stomach simulating a gastric carcinoma. A case report. Tumori 2007; 93: 220-222 [PMID: 17557576 DOI: 10.1117/03089160709300222]

30 Chapple CR, Muller S, Newman J. Gastric adenocarcinoma associated with adenomyoma of the stomach. Postgrad Med J 1988; 64: 801-803 [PMID: 3255924 DOI: 10.1136/pgmj.64.756.801]

31 Böck P, Abdel-Moneim M, Egerbacher M. Development of pancreas. Microsc Res Tech 1997; 37: 374-383 [PMID: 9220417 DOI: 10.1002/(SICI)1097-0029(19970601)37:5<374::AID-JEMT2-3.0.CO;2-E]

32 Ling CH, Situ ZX. [Gastric adenomyoma: with report of 9 cases]. Zhonghua Wai Ke Za Zhi 1985; 23: 424-425, 446 [PMID: 4053869]

33 Wang ZC, Huang XR, Xiao H, Lai RQ. Adenocarcinoma arising in gastric heterotopic pancreas type III. Zhonghua Zhenshen Bingliu Zazhi 2010

34 Inoue S, Masuda H. [A case of adenomyoma of the gallbladder with gastric polyps (author's trans)]. Nihon Shokakibyo Gakkai Zasshi 1978; 75: 366-373 [PMID: 660975)

35 Campbell RJ. Gastric adenomyomas; report of a case. Br J Radiol 1949; 22: 284 [PMID: 18131313 DOI: 10.1259/0007-1285-22-257-284]

36 Faiqel DO, Gopal D, Weeks DA, Corless C. Cap-assisted endoscopic submucosal resection of a
pancreatic rest. Gastrointest Endosc. 2001; 54: 782-784 [PMID: 11726863 DOI: 10.1067/mge.2001.116620]
37 Floros D, Dosios T, Gourtsoyiannis N, Vyssoulis C. Gastric duplication associated with adenomyoma. J Surg Oncol 1982; 19: 98-100 [PMID: 6276617 DOI: 10.1002/jso.2930190211]
38 Kagawa S, Fujiwara T, Nishizaki M, Naomoto Y, Hiroshi I, Tanaka N. Adenomyoma of the stomach presenting as localized peritonitis. Dig Dis Sci 2007; 52: 3184-3187 [PMID: 17394080 DOI: 10.1007/s10620-006-9590-z]
39 Kamrani K, Cutler J, Austin C, Hudacko R, Bhattacharyya N. Adenomyoma causing gastric outlet obstruction. J Pediatr Surg Case Rep 2019; 42: 51-53 [DOI: 10.1016/j.epsc.2018.12.026]
40 Reardon PR, Schwartz MR, Fagan SP, Reardon MJ, Brunacci FC. Completely laparoscopic resection of a rare pyloric tumor with laparoscopically sutured gastroduodenostomy. J Laparoendosc Adv Surg Tech A 1999; 9: 147-154 [PMID: 10235352 DOI: 10.1089/lap.1999.9.147]
41 Zarling EJ. Gastric adenomyoma with coincidental pancreatic rest: a case report. Gastrointest Endosc 1981; 27: 175-177 [PMID: 7297827 DOI: 10.1016/s0016-5107(81)73186-9]
42 Vandelli A, Cariani G, Bonora G, Padovani F, Saragoni L, Dell’Amore D. Adenomyoma of the stomach. Report of a case and review of the literature. Surg Endosc 1993; 7: 185-187 [PMID: 8503076 DOI: 10.1007/BF00594104]
