

Sporadic pedunculated duodenal adenomas. Clinical presentations and endoscopic management: a case series

G. BRUNO¹, P. TRENTINO², M.A. VIARENGO², A. TOMA¹, C. VIRILI³,
M. CENTANNI³, A. PICARELLI¹, P. GOZZO⁴, F. ACCARPIO², B. POROWSKA²

SUMMARY: Sporadic pedunculated duodenal adenomas. Clinical presentations and endoscopic management: a case series

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The prevalence of sporadic duodenal polyps is estimated to be 0.3%-4.6% in patients referred for an upper endoscopy. Most of patients are asymptomatic (66-80%) at the time of diagnosis though bleeding, anemia and abdominal pain are the most commonly reported symptoms. These are related to the polyp's size, location and histological characteristics. We describe three cases of big, pedunculated nonampullary sporadic duodenal polyps (tubulovillous low-grade dysplasia adenomas) located in the second part of the duodenum and cha-

racterized by different clinical presentations, managed in our Endoscopic Unit within one year (between 2016 and 2017). Polypectomies were performed, either piece-meal or en-bloc using various endoscopic instruments. In one of our patients (case 1), a delayed bleeding (36 hours after the procedure) occurred eventually managed conservatively with two units of blood transfusion. In the same patient, in the following months after polypectomy, the pre-procedural state of anemia misclassified as Mediterranean anemia has improved with a significant rise of hemoglobin value (14.1g/dl). In a patient who previously underwent a renal transplant (case 2), endoscopy was indicated, based on the positive fecal occult blood test. In another patient (case 3), a big polyp induced pancreatitis since it exerted a strong traction on the duodenal wall during peristaltic movements. The removal of the polyp has led to the resolution of pancreatitis and associated symptoms.

KEY WORDS: Duodenal polyps - Sporadic duodenal adenomas - Endoscopic management - Bleeding - Pancreatitis - Levothyroxine malabsorption.

Introduction

Sporadic duodenal polyps are uncommon lesions usually found incidentally during upper gastrointestinal endoscopy. In most cases, they are asymptomatic and located in the first and second parts of the duodenum. Histological examination is mandatory to determine the polyps' nature and the subsequent treatment and follow-up. We describe three cases of big, pedunculated nonampullary and sporadic adenomas located in the second part of the duodenum, characterized by different clinical presentations and

diagnosed in our Endoscopic Unit within one year (between 2016 and 2017). The polyps were removed by endoscopic resections, either *piece-meal* or *en-bloc*, and the final histological diagnosis was tubulovillous low-grade dysplasia adenomas (TVA-LGD) in all three cases.

Case series

Patient 1

A 72-year-old Caucasian woman complaining of dyspeptic symptoms and reporting of a small mass moving along her abdomen after meals was referred to our Endoscopy Unit at the Policlinic Umberto I in Rome for a gastroscopy. The patient's physical exam was normal except for a mild abdominal tenderness of the hypogastric quadrant on deep palpation. The results of routine blood tests showed a mild, chronic microcytic anemia (hemoglobin 11.8 g/dl,

¹ Department of Internal Medicine and Medical Specialties, Gastroenterology Unit, Sapienza University, Rome, Italy

² Department of Cardio-Thoracic, Vascular Surgery and Transplants, Sapienza University, Rome, Italy

³ Department of Medico-Surgical Sciences and Biotechnologies, Endocrinology Unit, Sapienza University of Rome, Latina, Italy

⁴ Department of General and Plastic Surgery, Sapienza University, Rome, Italy

Corresponding author: Giovanni Bruno, e-mail: giovanni.bruno@uniroma1.it

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MCV 72 fl) classified as Mediterranean anemia. She was affected by carotid atherosclerosis treated with oral antiplatelet agents. Furthermore, in 2004, due to the presence of a voluminous multinodular goiter, she underwent a total thyroidectomy followed by therapy with sodium levothyroxine. Despite the expected increased need for thyroxine following thyroidectomy (1), the requirement was unexpectedly large. In fact, to maintain serum TSH concentrations within the normal range, the dose had to be almost doubled as compared to her theoretical dose, which was calculated according to weight and age (2.15 vs 1.3 mcg/Kg/die). Gastroscopy revealed a voluminous 45mm large pedunculated polyp in the second part of the duodenum. Multiple biopsies performed for histology revealed a TVA-LGD. Therefore, an endoscopic polypectomy was performed a month later. After the in-stalk injection of a solution of 0.9% saline, adrenalin (1:20,000) and methylene blue, a *piece-meal* snare polypectomy was carried out (two snares). We added adrenaline to the

solution to prevent early bleeding. Three hemostatic clips were applied to the polyp base. Due to the huge size of the polyp, far exceeding the pylorus diameter, we were unable to remove it *in-toto*. For this reason, the polyp was cut with the snare into smaller pieces within the duodenum (Figure 1). All the pieces were then collected and retrieved to ensure a complete histopathological assessment. The diagnosis of TVA-LGD was confirmed (Figure 2). It is our policy, to leave the patient fasting for 24 hours after major and complex polypectomy procedures. Liquid diet is then permitted for two days followed by semi-liquid diet for one week. Therapy with proton pump inhibitor (40 mg bid intravenously) is given for two days and then it is switched to oral administration. On the second night after polypectomy, the patient had a discharge of blood per rectum which resulted in a hemoglobin drop to 7.8g/dl and was transfused with two units of blood. The bleeding was very likely due to the detachment of a clip but considering the hemodynamic stability (PA 120/80

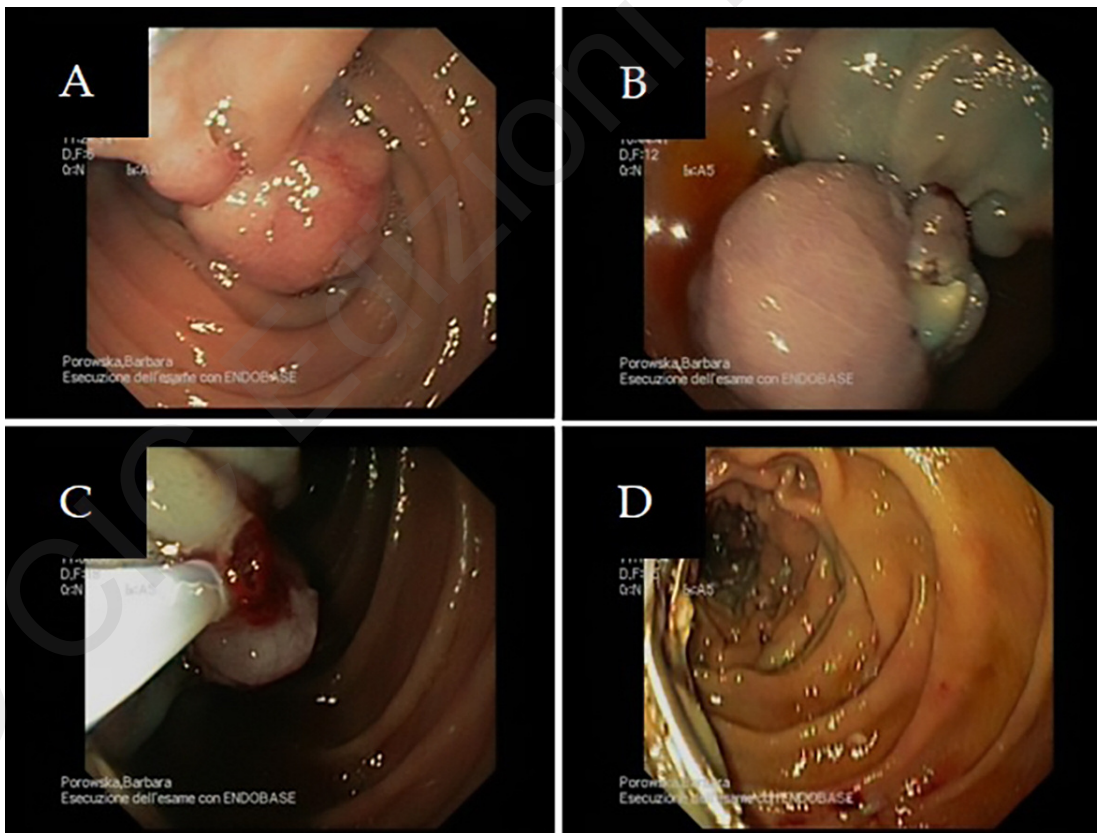


Figure 1 A, B, C, D - Endoscopic polypectomy. A: Pedunculated polyp in the second part of duodenum. B: Polyp transected. C: Resection completed by removing a small tubulo-villous remnant. D: Clips applied to the polyp base.

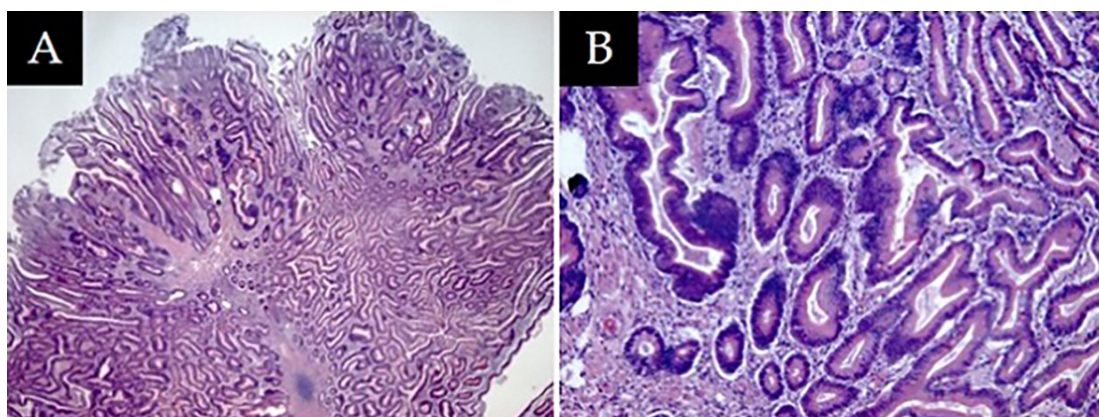


Figure 2 A, B - Tubulovillous low-grade dysplasia adenomas (TVA-LGD). A: Magnification 1,25x. B: Magnification 10x.

mmHg, heart rates 70 bpm), a control gastroscopy was not performed. After that single night episode, the bleeding did not recur and her hematologic parameters improved (hemoglobin 12.2 g/dl, MCV 80 fl). She was discharged from the hospital three days later. After polypectomy, the patient no longer felt the small mass moving along her abdomen after meals. Two gastroscopies with multiple biopsies were performed after two and twelve months. There was no adenoma recurrence (Figure 3).

During clinical follow-up, while hemoglobin remained stable over 14 g/dl, only a slight decrease of levothyroxine requirement (1.98 mcg/Kg/die) has been observed without reaching the normal values. We hypothesized that, in addition to the chronic loss of blood from the polyp's head, the polyp mass induced hyperperistalsis causing additional iron deficiency and levothyroxine malabsorption. However, the persistence of an increased T4 need may be attributed to other mechanisms. Several gastrointestinal causes of T4 malabsorption have in fact been described (dysbiosis, *H. pylori* infection, chronic gastritis) (2-4). A longer time period is needed to verify whether this therapeutic effect of polypectomy is temporary or permanent.

Patient 2

A 70-year-old Caucasian man was referred to our Endoscopic Unit for a combined upper and lower digestive endoscopy on the out-patient basis, based on a positive fecal occult blood test (FOBT). In 2003, he underwent renal transplantation for nephrotic syndrome. Additionally, he was affected with chronic atrial fibrillation, type 2 diabetes mellitus and obstructive sleep apnea syndrome (OSAS). For these diseases, he was treated with the immuno-

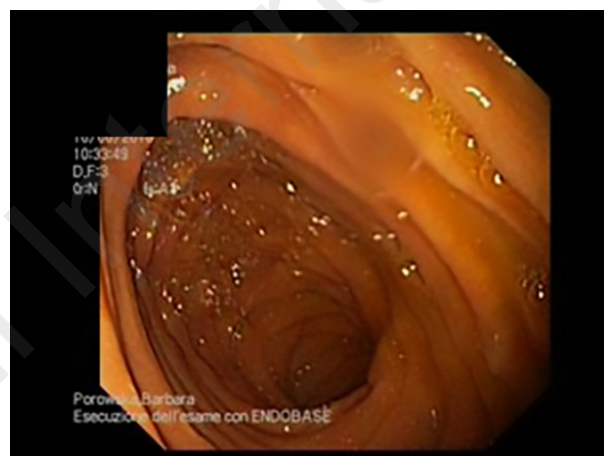


Figure 3 - Control gastroscopy, two months after polypectomy.

suppressor tacrolimus, the corticosteroid prednisone, the anticoagulant warfarin and the antidiabetic repaglinide. In December 2016, a colonoscopy and gastroscopy were performed in our Endoscopic Unit. Colonoscopy was negative. Gastroscopy revealed the presence of a 20mm hiatal hernia, grade A esophagitis (according to the Los Angeles Classification System), erosive gastritis of the antrum, a big perivaterian diverticulum and a pedunculated polyp (25 mm) located on the lateral duodenal wall at the height of the papilla of Vater (Figure 4). Multiple biopsies were performed and revealed a TVA-LGD. In January 2017, on the day-hospital basis, a control gastroscopy was performed. The base of the polyp was injected with the solution of 0.9% saline, adrenalin (1:20,000) and methylene blue, and the polyp was resected *en-block* with a standard polypectomy snare (both coagulation and cutting currents were used). Four hemostatic clips were applied to the polyp base. The resected polyp got lost in the fourth

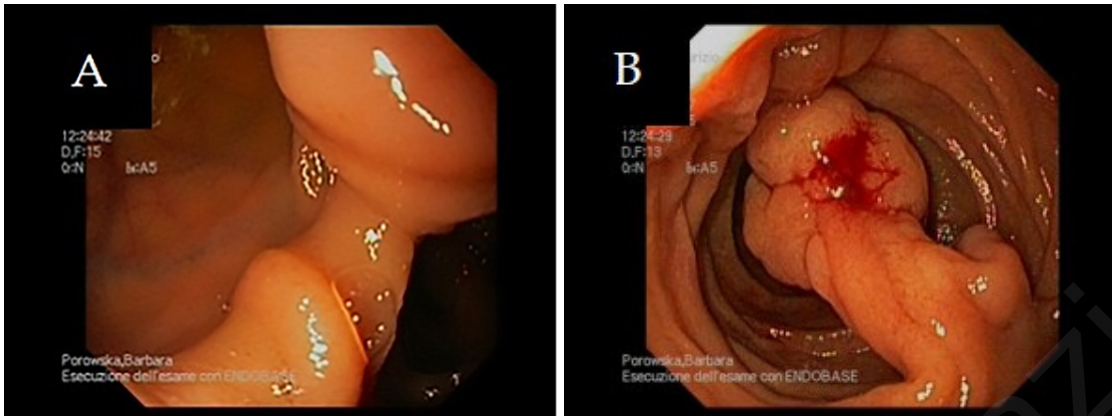


Figure 4 A, B - Endoscopic findings. A: Large periampullary diverticulum. B: Pedunculated polyp in the second part of duodenum (postero-lateral wall).

part of the duodenum and was then retrieved using a colonoscope. We repeated gastroscopy to better observe the resection site and placed one more clip for hemostasis. The histological assessment described a moriforme polyp (30-28-10 mm size) with stromal axis and with the resection base presenting regular

mucosa (Figure 5). The diagnosis of TVA-LGD was also confirmed. The post-procedural period was uneventful. The patient was discharged from the hospital the following day, with a prescription for a liquid diet for three days and proton pump inhibitors for one month.

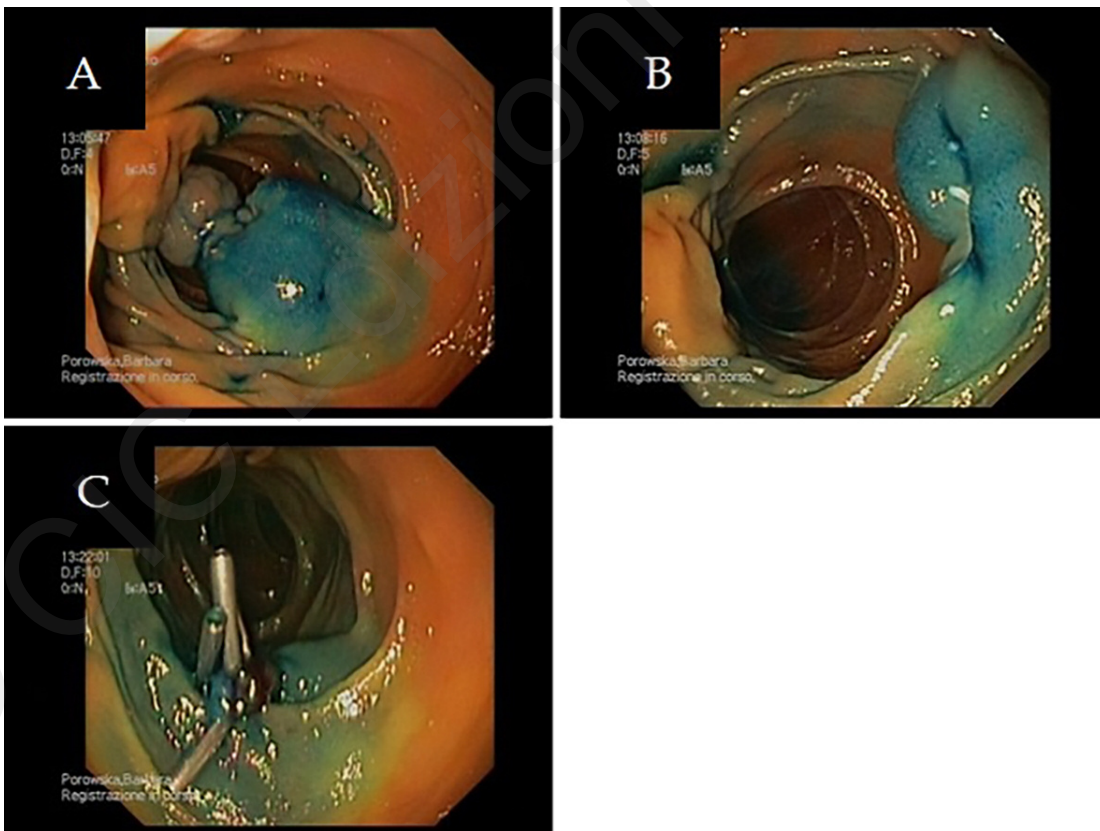


Figure 5 A, B, C - Endoscopic polypectomy. A: The polyp stalk after the injection of a solution of adrenaline and methylene blue. B: Polyp base after resection en block. C: Four clips applied to the polyp base.

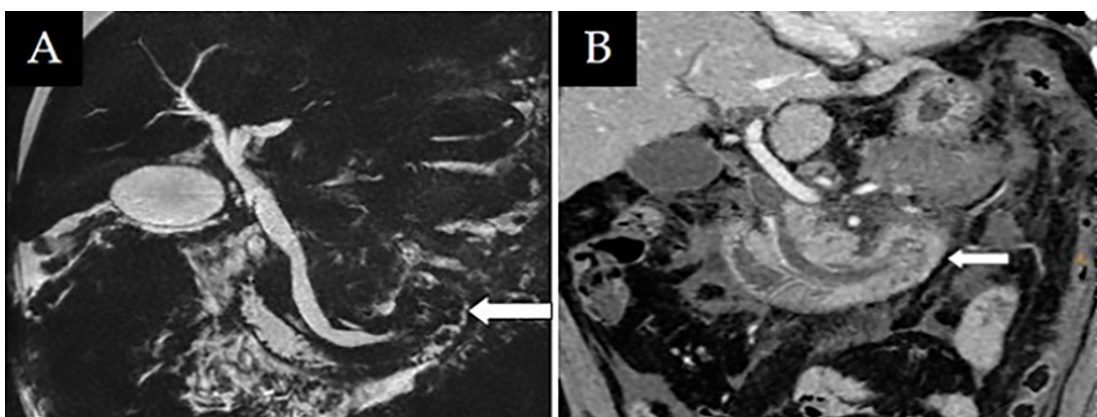


Figure 6 A, B - Radiological findings. A: Coronal reformatted MPR CT image showing a huge pedunculated polyp (arrow) within the second part of the duodenum. B: T2 weighted coronal MR image showing the relationship between the common bile duct and the head of the polyp (arrow).

Patient 3

In January 2017 a 52-year-old Caucasian man, in apparently good health, was admitted to our Endoscopic Unit for the evaluation of a duodenal polyp diagnosed one month before in another hospital, where he had been treated for severe acute pancreatitis. At that time, a CT scan and MRI had revealed the presence of a bulky duodenal pedunculated polyp, stretching the medial duodenal wall, causing a partial rotation and dislocation of the head of the pancreas and the papillary region, which was pulled up to the Treitz, thus possibly contributing to the pathogenesis of pancreatitis (Figure 6).

Gastroscopy revealed the presence of a 50mm large duodenal polyp with a long, 20-30 mm large stalk, with the histological diagnosis of TVA-LGD on biopsies. Ten days later, because of a persistent abdominal discomfort, a control CT scan was carried out and revealed a pancreatic abscess (80-160 mm) that was successfully treated with a trans-gastric percutaneous drainage. After 10 days, polypectomy was carried out using a straight viewing endoscope. It was preceded by the injection of a solution of 0.9% saline, adrenalin (1:20,000) and methylene blue into the stalk. The procedure turned out to be challenging, as the largest available polypectomy snare (3-6cm) failed to grasp the polyp *en-bloc*. We attempted a *piece-meal* resection that proved to be difficult because of limited visibility. Thus, we switched to a duodenoscope, which enhanced the vision of the papillary region and clearly delineated the limit between the head and the stalk of the polyp, allowing the procedure to be completed. Multiple hemostatic clips were applied to the polyp base (Figure 7). The final histological examination

confirmed the previous diagnosis of TVA-LGD and a control gastroscopy performed 4 months later showed no recurrences. Since then, no episodes of acute pancreatitis have been observed.

The procedure of duodenal polypectomy may be challenging and time-consuming. Thus, in all three cases during endoscopy, propofol sedation was used, and anesthesiological assistance was ensured.

Discussion

Duodenal polyps are a rare clinical entity that carry neoplastic potential with a severe clinical impact. The prevalence of sporadic duodenal polyps (SDP) is estimated to be 0.3%-4.6% in patients referred for an upper endoscopy (5). They can be classified according to their histopathological subtype and location as follows: non ampullary sporadic adenoma, ampullary sporadic adenoma, Brunner's gland adenoma or hamartoma, gastric heterotopia/metaplasia, inflammatory fibroid polyp, lipoma, leiomyoma, carcinoid, gastrointestinal stromal tumors, lymphoma, and solitary Peutz-Jeghers polyps. Sporadic duodenal adenomas (SDAs) account for up to 7% of all duodenal polyps (6). Most of patients are asymptomatic (66-80%) at the time of diagnosis, although bleeding, anemia and abdominal pain are the most commonly reported symptoms. These are related to the polyp's size, location and histological characteristics (7-11). The mean age at diagnosis is roughly 70 years and the occurrence is approximately equal in both men and women (12). Approximately 80-94% of SDAs are usually solitary, sessile and found in the second part of the

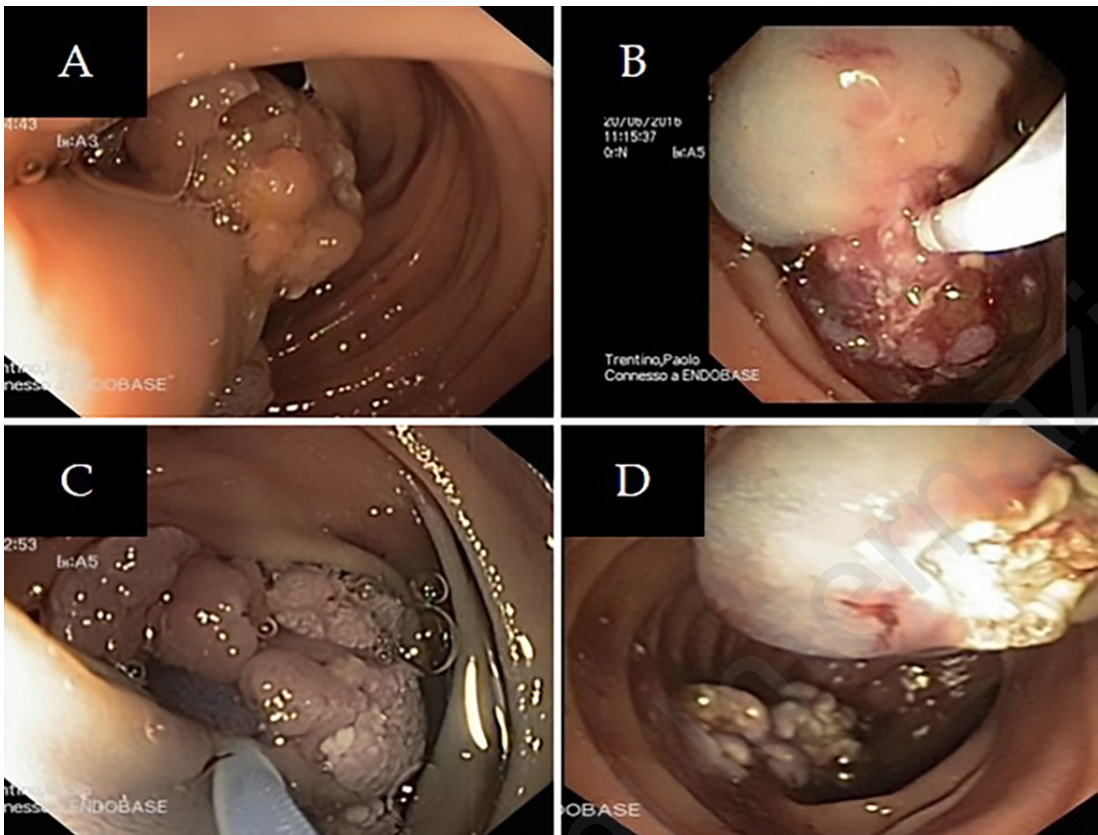


Figure 7 A, B, C, D - Endoscopic polypectomy. **A:** Pedunculated, 50 mm large polyp in the second part of the duodenum. **B:** Polyp stalk after the injection of a solution of 0.9% saline, adrenaline and methylene blue. **C:** Polyp grasped with the snare. **D:** resection completed.

duodenum, with a mean size ranging from 13 to 29 mm (5, 13). These lesions carry malignant potential that increases with size, similar to colonic adenomas. Endoscopic or surgical removal is the recommended therapeutic option (14). The duodenum has a rich vascularity supplied by the branches of the pancreaticoduodenal arteries, thus increasing the possibility of an immediate or delayed post polypectomy bleeding. Post polypectomy bleeding of duodenal polyps, either intra-procedural or delayed, ranges from 0% to 22.2% in various reports (5). There was no acute post polypectomy bleeding in our three cases, though it occurred after 36 hours in case 1. Delayed bleeding should be considered as a possible complication, especially in frail elderly patients and those receiving anticoagulants for various cardiovascular pathologies. In support of this, in such cases, it may be reasonable to prolong the post-procedural hospital stay and discharge the patient only after an accurate hemodynamic evaluation.

Pancreatitis due to the presence of a duodenal polyp is a very rare etiologic condition. The polyp can intermittently obstruct the papilla of Vater, cre-

ating a ball-valve effect as described in a case report of a big duodenal Brunner's gland adenoma cured surgically (15), or as in our case 3 that describes a big, pedunculated adenoma causing strong traction on the duodenal wall during peristaltic movements, resulting in a partial dislocation of the head of the pancreas. The endoscopic removal of the polyp resulted in the resolution of pancreatitis and the associated symptoms. To our knowledge, the above etiologic mechanism of pancreatitis is the first to be described in the literature. We found reports of post-polypectomy pancreatitis following resection of large duodenal polyps, especially in procedures like ampullectomy, which is burdened with pancreatitis in 0-19% of the cases (16, 17). There is no doubt that the removal of big duodenal polyps requires expertise in endoscopy, since the procedure frequently turns out to be very challenging. It should be noted that the level of difficulty in the assessment of the diagnosis and management of the polyps includes their size, morphology, site and access. Patients with SDAs are at an increased risk for colonic neoplasia (adenoma, advanced adenoma and advanced neopla-

sia), as shown in several reports. The rates may be as high as 72.7% for adenomas, 22.9% for advanced adenoma and 28.6% for advanced neoplasia (18, 19). This indicates the need for colonoscopy, which was offered accordingly to our three patients and was negative.

Endoscopic follow-up of SDAs is mandatory to evaluate the presence of recurrences, particularly when the villous component is present (20). Though indications for optimal management of duodenal polyps are still lacking, it seems logical that endoscopic treatment should be tailored to the size and location of polyps, the overall polyp burden, comorbidities and patient choices.

Conclusions

Duodenal polyps can be responsible for a variety of symptoms and pathologies. Our case series show that endoscopic management of very big pedunculated polyps is feasible. The occurrence of procedure-related complications should be taken into account in planning the intra- and post-procedural patient care. The choice of the most suitable endoscopic equipment for the procedure mostly depends on the polyp size, its location and eventual migration. Surveillance endoscopy is mandatory for the detection of recurrences. In our case series, no adenoma recurrence was observed within twelve months, but further follow-up is advocated.

Financial disclosure

None to report.

Conflict of interest

The Authors declare no financial conflict of interest.

Informed consents

Were obtained for these case series.

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