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Case Report

A Rare Connection: Case Report of Neuroendocrine Tumors Misdiagnosed as Hemorrhoids

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Abstract

***Background*:** Hemorrhoids are a prevalent condition affecting the anal and rectal area, often resulting in symptoms such as bleeding, pain, and prolapse. While typically benign, they can coexist with other anorectal issues, including anal fissures and polyps. Rarely, neuroendocrine tumors may be discovered in patients with hemorrhoids, underscoring the necessity for thorough evaluation and histopathological examination to identify and address any significant underlying conditions. ***Case Presentation*:** This case presentation describes a 39-year-old male who presented to the clinic on August 13, 2024, with a one-year history of rectal bleeding, pain, burning, and prolapse during defecation, along with occasional constipation. Physical examination revealed third-degree hemorrhoids, a chronic anal fissure, and an anal polyp. The primary diagnosis was third-degree hemorrhoids, with secondary diagnoses of chronic anal fissure, anal polyp, and constipation. The patient underwent elective surgical interventions, including stapler hemorrhoidopexy, fissurectomy, sphincterotomy, and excision of the anal polyp, all performed under general anesthesia without complications. Histopathological analysis of the excised hemorrhoidal tissue revealed a Grade 1 neuroendocrine tumor measuring 3 mm, with no evidence of malignancy elsewhere. Postoperative recovery was stable, with the patient reporting no significant complications during follow-up. ***Conclusion*:** This case illustrates the complexity of managing hemorrhoidal disease and its potential associations with other anorectal conditions, such as anal fissures and polyps. The identification of Grade 1 neuroendocrine tumors emphasizes the importance of thorough evaluation in patients presenting with rectal symptoms, even when benign conditions are suspected.

Keywords: Neuroendocrine Tumors, Hemorrhoids, Anal Polyps, Anal Fissures.

INTRODUCTION

Hemorrhoids are a common anorectal condition characterized by swollen veins in the lower rectum or anus, often leading to symptoms such as rectal bleeding, pain, and prolapse [1]. Although generally benign, complications can arise, including chronic anal fissures and the development of anal polyps. Neuroendocrine tumors (NETs) of the rectum, though rare, can occasionally be found in conjunction with other conditions like hemorrhoids, necessitating careful evaluation and management [2]. Neuroendocrine tumors are a diverse group of tumors that show different clinical presentations and varying rates of growth. The latest group of these tumors is the gastroenteropancreatic (GEP) NETs. The estimated incidence is around 2.5 to 5 cases per 100,000 people each year, while the prevalence is about 35 cases per 100,000 [3]. Multiple studies indicate that there has been a consistent rise in the occurrence of gastrointestinal NETs, as well as improved survival rates over the last thirty years. However, the prognosis for poorly differentiated NETs continues to be quite bleak [4]. Neuroendocrine tumors release different peptide hormones, including substance P, calcitonin, pancreatic polypeptide, and chromogranin A [5, 6]. Additionally, biological amines like neuron-specific enolase and serotonin, also known as 5-hydroxytryptamine, are regulated by the autonomic nervous system. Many of the NETs show expression of synaptophysin and chromogranin A [7].

While rectal NETs makeup about 1–2% of all rectal tumors and usually show a benign clinical profile. The yearly occurrence in the United States is 0.93 per 100,000 people [8]. The prevalence of rectal NETs is

approximately 5.1 per 100,000 people [9]. Tumors that are smaller than one centimeter generally have a low risk of spreading to other parts of the body. The risk goes up to 60–80% for tumors that are larger than 2 cm [10]. In 2010, the World Health Organisation classified all NETs as having potential for malignancy [11]. Rectal NETs can show symptoms like abdominal pain, diarrhea, weight loss, or gastrointestinal blood loss when they are symptomatic. If there is metastatic disease, it might be linked to severe hepatomegaly, anemia, or a palpable mass in the abdomen [12]. Different clinical data, including elevated serum cholesterol, hypertriglyceridemia, low levels of high-density lipoprotein cholesterol, and metabolic syndrome have been linked to a higher risk of developing rectal NETs, according to the literature [12].

CASE PRESENTATION

A 39-year-old male visited the clinic on August 13, 2024, with a one-year history of rectal bleeding, pain, burning, and prolapse during defecation. He also reported occasional constipation but noted no significant changes in weight or appetite. He described the symptoms as stable in severity.

The patient denied any significant medical or surgical history. He also denied fever, chills, weight loss and night sweats. In terms of gastrointestinal symptoms, he confirmed the presence of hemorrhoids but denied abdominal pain, nausea, vomiting, diarrhea, indigestion, or a loss of appetite. Constipation was reported as occasional. The patient's social history revealed no smoking or alcohol use, and he lives with his family. The patient also underwent a physical examination, including PR and anoscopy, which revealed third-degree hemorrhoids at the 3, 7, and 11 o'clock positions, a chronic anal fissure, and an anal polyp at the 6 o'clock position.

Based on clinical evaluations, the primary diagnosis was identified as third-degree hemorrhoids (K64.2). Secondary diagnoses included chronic anal fissure, anal polyp, and constipation. These conditions were all newly identified during this encounter. The treatment plan included stapler hemorrhoidopexy to manage the hemorrhoids, fissurectomy to treat the chronic anal fissure, sphincterotomy to relieve anal sphincter tension, and excision of the anal polyp. The procedures and potential complications, such as bleeding, infection, recurrence, and risks associated with anesthesia, were thoroughly explained to the patient. The patient understood the risks and agreed to proceed with the recommended surgical interventions.

Later, the patient underwent an elective surgical procedure under general anesthesia, which included stapler hemorrhoidopexy, excision of an anal polyp, fissurectomy, and anal sphincterotomy. No operative complications were reported, and a specimen was successfully removed during the procedure. Blood loss was minimal, estimated at 5 ml, with no transfusion required. No anticipated complications were noted, indicating a well-executed procedure with a focus on minimizing risks and ensuring patient safety.

A histopathological examination of the anal polyp was conducted. Multiple serial sections examined from the anal polyp showed hyperplastic stratified squamous lining epithelium. The sub-epithelium showed areas of fibrosis with small-sized dilated and congested vessels. However, no evidence of malignancy was noted. Additionally. Histopathological examination of hemorrhoidal tissue was conducted. The histopathology report indicated that hemorrhoidal tissue excised during the surgery contained a Grade 1 Neuroendocrine Tumor measuring 3 mm, with a Ki-67 index of less than 2%. The base of the excised specimen was tumor-free, and associated features consistent with hemorrhoids were noted. Microscopic examination revealed predominantly colonic mucosal lining and areas of hemorrhage, along with small abscess formation and mixed inflammation. Tumor cells exhibited monomorphic nuclei and minimal cytoplasm, with no signs of increased mitosis or necrosis. Positive staining for Synaptophysin and chromogranin confirmed the neuroendocrine origin. The histopathology report was reviewed and discussed with the pathologist from BMC. This tumor was completely removed during the procedure.

On September 4, 2024, the patient returned for a post-operative follow-up. The patient reported a stable recovery with no significant complaints. He denied any fever, chills, weight loss, night sweats, or muscle pain. His gastrointestinal review was also unremarkable, as he denied abdominal pain, nausea, vomiting, diarrhea, indigestion, constipation, or loss of appetite. Overall, the patient is recovering well post-surgery with no complications noted.

The gastrointestinal examination noted a clean wound with no perianal swelling, indicating a satisfactory recovery from the stapler hemorrhoidopexy. The patient was advised to maintain regular follow-up visits to monitor their condition. Overall, the patient's post-operative recovery was on track, and no further interventions were required at that time.

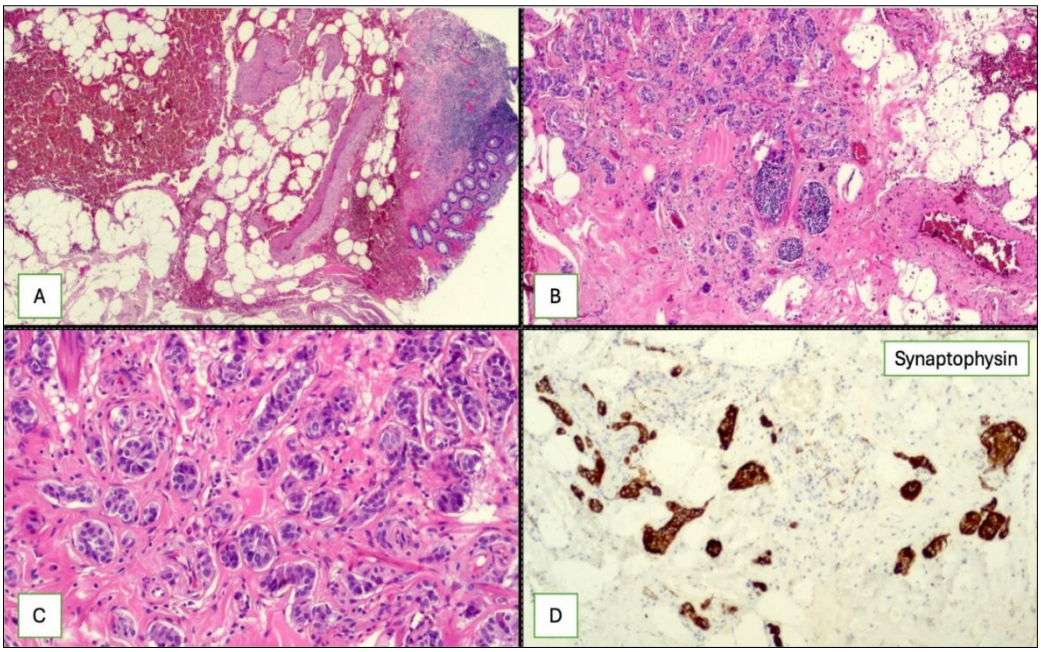

Fig (A): 100x H&E: Rectal mucosa with submucosa displaying areas of hemorrhage and thickened veins.
Fig (B): 200x H&E: Submucosa shows the presence of a tumor arranged in nests and cords adjacent to thick congested veins.
Fig (C): 400x H &E: Individual tumor cells show monomorphic nuclei with fine chromatin and a small amount of cytoplasm. No increase in mitoses or necrosis.
Fig (D): 200x IHC for Synaptophysin: These tumor cells show strong and diffuse cytoplasmic positivity for Synaptophysin.

DISCUSSION

The most common sites of NETs in the GI tract include the small intestine followed by the pancreas [13]. Anal NETs are exceedingly rare, accounting for 1% of the anal canal malignancies [14]. NETs share several common features on histological and pathological examination. On histological examination, NETs show clusters or ribbons of round to fusiform small to intermediate-sized cells with variably abundant mitoses representing NECs [15]. On immunohistochemical staining, they are also positive for chromogranin, synaptophysin, or neuron-specific enolase [16]. In our patient, immunohistochemical studies were positive for Synaptophysin.

Regarding symptoms, NETs most commonly present with gastrointestinal blood loss, weight loss, abdominal pain, and diarrhea [12]. In our case, patient also presented with rectal bleeding, pain, burning, and prolapse. However, no significant history of weight loss was noted in our case.

Imaging techniques like MRIs, CT scans, Positron emission tomography scans, ultrasounds, and somatostatin receptor scintigraphy are really important for detecting unknown primary neuroendocrine neoplasms (NENs). They also help with staging and the treatment process. Even with these different methods, the primary tumor site is still unknown in 20-50% of cases of NENs [16]. A CT scan helps find the primary tumor in about 22-45% of patients. Endoscopic ultrasound is more sensitive and specific compared to trans-abdominal ultrasound when it comes to detecting pancreatic neuroendocrine neoplasms (NENs) [17]. MRI is seen as better than a CT scan for checking lesions in solid organs, as one study indicated that MRI outperformed CT in finding metastatic lesions [17]. Radiologic diagnostic methods can be enhanced with radionuclide scans like somatostatin receptor scintigraphy (octreotide scan) and PET scans that use specific isotopes, such as 68Ga-DOTA-octreotate [17]. In our patient's case, no such testing was done. The tumor was diagnosed in histopathological reports of hemorrhoidal tissue.

In our case, Histopathological examination revealed the presence of a Grade 1 neuroendocrine tumor in the excised hemorrhoidal tissue. Neuroendocrine tumors are rare, with a prevalence reported at 0.5% to 2.2% of all anal tumors [18]. The tumor's low Ki-67 index (<2%) indicates a low proliferation rate, which is consistent with findings in other studies suggesting that such tumors generally exhibit indolent behavior when diagnosed early [18].

The treatment plan for our patient included stapler hemorrhoidopexy, fissurectomy, sphincterotomy, and excision of the anal polyp. This multimodal approach is consistent with the existing recommendations, which imply that patients with severe

hemorrhoidal disease who did not respond to conservative management should be offered surgical treatment [19]. In particular, stapler hemorrhoidopexy has been said to bring about equivalent and superior symptomatic improvement with fewer instances of postoperative pain when compared to conventional hemorrhoidectomy [20]. The fissurectomy was required for the chronic anal fissure and the sphincterotomy to decrease the sphincter tone was needed when poor blood supply, chronic fissure, or increased sphincter tone is observed which has been shown to enhance the healing process and reduce recurrence [21].

CONCLUSION

This case demonstrates successful treatment of hemorrhoids of grade 3 along with chronic anal fissures and neuroendocrine tumors in a 39-year-old man through surgery. The elective surgeries used stapler hemorrhoidopexy and removed the anal polyp along with fissurectomy and sphincterotomy were carried out without difficulties. During follow-up the patient indicated there were no major problems after surgery and no concerning symptoms. The patient experienced a stable recovery without any complications after surgery revealing the necessity for swift surgical measures and extensive healthcare services in treating anorectal diseases. Regular check-ups are crucial to track the patient's improvement and guarantee sustainable health success.

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