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GLOMUS TUMOR OF THE STOMACH – A CASE REPORT AND A LITERATURE REVIEW

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The study presented a case of a patient with a glomus tumor of the stomach, a mesenchymal neoplasm manifesting with upper gastrointestinal bleeding (Forrest IB). The patient was operated twice. First, he underwent elective laparotomy, during which Billroth I (Rydygier's method) gastric resection was performed. This his was followed by Billroth II resection with Braun's anastomosis. Histopathological examination revealed glomus tumor tissue. Literature data on the glomus tumor of the stomach are presented.

Key words: glomus tumor, upper gastrointestinal bleeding, gastric resection

Glomus tumor is a benign mesenchymal neoplasm arising from a glomus body and mostly located in the subungual region (1,2). It develops in the neuro-musculo-arterial glomus located at arteriovenous crossings abundant in nerve fibers involved in cutaneous thermoregulation (1, 3). Glomus tumor is a rare lesion accounting for about 2% of soft tissue neoplasms (4). It can occur in different parts of the body, particularly in the peripheral soft tissue, i.e. in the dermis of the hand, the wrist and the great toe. Other locations include the sublingual area, the nerves, the nasal cavity, the trachea, the urogenital region, the gastrointestinal tract, the bile ducts and the peritoneum (3, 5).

Glomus tumor rarely occurs in the stomach (1,6). Kornman et al. were first to describe a capillary hemangioma of the stomach in 1913. Further descriptions of glomus tumor were reported by French investigators, Barre and Masson (1924) as well as Russian researchers, Markelov (1934) and Liveschin (1936). Histopathological findings of these tumors were described by Murray and Stout in 1942.

CASE REPORT

A patient was urgently admitted to the Department of Surgery in the 4th Military Teaching Hospital in Wrocław due to syncope and gastrointestinal bleeding. Medical history was as follows: varicose veins of the right lower limb, right ureterolithiasis, coronary heart disease, degenerative lesions of the spine. Gastroscopy on admission revealed an actively bleeding ulcer of the lesser curvature of the stomach and blood drainage from the lower pole of ulceration (Forrest IB). The patient was qualified for surgical treatment. Midline laparotomy incision was performed, followed by resection of the stomach with the tumor and end-to-end anastomosis according to the Rydygier's method (Billroth I) using staplers.

Histopathological examination revealed gastric glomus tumor tissue. Postoperative period complicated with raised temperature of between 38-39.4°C, postoperative wound abscess located in the upper pole and gastrointestinal anastomotic leakage. The postoperative management involved the use of a central ve-

nous catheter in the right subclavian vein for parenteral nutrition and intravenous pharmacotherapy. The medications used included prokinetics, crystalloids, antibiotics, analgesics, antispasmodics and fresh frozen plasma.

The patient was hospitalized again after a month due to asthenia, malaise, nausea, vomiting and body weight loss. On admission the patient was in moderate condition, with significant asthenia and a weight loss of 16 kg since the previous surgical procedure, occasional vomiting and constipation (stool every other day on average). Contrast-enhanced X-ray of the gastrointestinal tract was performed using uropolin, revealing gastroduodenal narrowing with maintained patency and continuity of the gastrointestinal tract, as well as a small fistula and diverticulum, which emptied almost entirely upon changing body position, in the anastomotic region, on the inside of the duodenal loop. Conservative treatment was implemented. Central venous catheter was inserted in the right subclavian vein for partial parenteral nutrition and intravenous pharmacotherapy. Contrast-enhanced assessment repeated during hospitalization confirmed the previous diagnosis and additionally found that the anastomotic fistula was connected to the skin. Gastrofiberoscopy was performed, revealing infiltrated and stiff walls of the gastric stump, raising a suspicion of gastric tumor recurrence. A decision was made to perform another laparotomy. The scar with the cutaneous fistula and the gastroduodenal anastomotic fistula were excised, followed by Billroth II resection of the stomach and Braun's enteroanastomosis using staplers. There were no postoperative complications. The patient was discharged home in good overall and local condition.

DISCUSSION

Glomus tumors of the stomach are rare neoplasms (1). Most of these tumors were found in women aged 38 to 73 years (mean age 55 years) (4, 7). The female/male ratio of glomus tumor of the stomach is 22:9 in the USA and 9:3 in Korea (4, 8). The incidence is slightly higher in the colored race. Brazilian authors reported 130 cases of glomus tumor, one of which was clearly malignant (4). In most cases the disease manifested with gastrointestinal bleeding. The patients usually recovered after an incident of gastrointestinal bleeding from the tumor. The estimated incidence of tumor bleeding is approx. 30%. Some of the patients underwent surgical treatment due to gatrointestinal obstruction caused by gastric lumen closure by the tumor. Asymptomatic tumors as well as tumors identified in postmortem material from patients deceased due to gastrointestinal bleeding were also reported (7). Most of the resected tumors were located in the pylorus and accompanied by mucosal ulceration (5).

Gastric glomus tumors are most often located in the lesser or greater curvature and the peripyloric region. Usually, a tumor resembling a semicircular mass is intraoperatively found in the gastric wall. In the described cases, the diameter of the tumor ranged between 1 and 4 cm (mean 2.7 cm) (3, 7). The mass develops submucosally and grows towards the gastric lumen. The tumor appears as a fleshy, grey-white or dark red tumor, composed of richly vascularized smooth muscle.

The structure promotes ulceration and, as a consequence, bleeding, which are usually the direct reasons for emergency hospitalization. Cases of death due to acute hemorrhage have been reported (1). In the case of minor bleeding, the patient is treated for anemia.

On ultrasound, the glomus tumor appears as hypoechoic masses in the submucosal layer with external areas of varying echogenicity mixed with hyperechoic spots (3). The tumor contains multiple blood vessels of varying lumen diameters and with specific blood flow. Therefore, intravenous (iv) contrast enhanced computed tomography is particularly helpful in preoperative diagnosis (5). CT scan shows well-delineated submucosal masses with a homogeneous structure and occasional calcified spots (2, 3). Intravenous contrast-enhanced MRI can also prove useful in qualifying patients for surgical treatment due to signal intensity of gastric tumors (3).

The intraoperative choice of resection by the Rydygier's (Billroth I) and Billroth II method is based on tumor location (1, 2). In some cases, local resection is chosen, which allows to spare the stomach and, as in the

Rydygier's method, enables the physiological passage of digestive tract contents (7). Laparoscopic wedge resection of the tumor has also been successfully used (3).

Clinically, the glomus tumor is differentiated from richly vascularized tumors, e.g. gastrointestinal stromal tumor, ectopic (or heterotopic) pancreatic tissue, angiomyoma, angiolipoma, adenocarcinoma, germ cell tumor and carcinoid. The incidence of gastric glomus tumor is 100 times lower than the incidence of GIST (9).

Glomus tumor is composed of smooth muscle and reticular lines of benign tumor cells with abundant vasculature. The muscular, intracellularly extended reticulum divides the tumor into several lobes, with partially hyalinized (by glycoproteins) connecting tissues (6, 7). The tumor contains vessels of different diameters and wall thickness, from small capillaries to wide spaces with vascular endothelial layer. Monomorphic cells arranged in sheets, which are wrapped in a disseminated network of blood vessels, are visualized within the tumor. Other pathologists describe vascular endothelium surrounded by tumor cells. These cells have a central, non-defined nucleus and abundant clear cytoplasm (1, 3, 7). Each cell has a well-defined cell membrane. Glomus tumor should be differentiated from carcinoid tumors using immunohistochemistry (IHC). IHC testing confirms the diagnosis of glomus tumor when cells are stained positive for vimentin and alpha-smooth muscle actin, and negative for chromogranin (2, 4, 10).

CONCLUSIONS

Glomus tumor of the stomach is a rare submucosal neoplasm located in the peripyloric region. Abdominal CT and NMR imaging are useful during an additional assessment. Immunohistochemical staining is essential for clear histopathological diagnosis. Wedge resection with negative margins or total gastrectomy are recommended treatment options. Most glomus tumors have a favorable prognosis and manifest a mild course of disease.

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