

Atypical pattern of rectal cancer metastasis into mouth cavity

Radoslav S Todorova^{1*}, Ivanka Tanevaa¹, Emilia Toshevaa¹, Evgeny Jivkova¹, Atanas Ionkova¹, Petar Bojinov², Vladimir Bogdanov³

¹Clinic of General and Liver-Pancreatic Surgery, University Hospital for Active Treatment Alexandrovska, Sofia, Bulgaria; Department of Operative Surgery, Faculty of Medicine, Medical University of Sofia, Bulgaria.

²Department of Dental Public Health, Faculty of Dental Medicine, Medical University Sofia, Bulgaria.

³Department of Orthodontics, Faculty of Dental Medicine, Medical University Sofia, Bulgaria.

*Corresponding author

Radoslav S Todorova, Clinic of General and Liver-Pancreatic Surgery, University Hospital for Active Treatment Alexandrovska, Sofia, Bulgaria.

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Abstract

Metastasis is one the most common pathways of progression of rectal cancer. Rectal cancer metastases spread through lymphatic and blood vessels, giving metastases generally into locoregional lymphatic nodes-lymphogenic metastasis and also liver and lung-hematogenic metastasis. The metastasizing process depends on creation of premetastatic niche-giving the cancer cells a prolific condition. A case of 73 years old male patient with a rectal cancer and metastases in locoregional lymphatic nodes and an atypical metastasis in the gingiva of the maxillary premolars had been accepted in the clinic of General and Liver-Pancreatic Surgery, University Hospital Alexandrovska, Sofia, Bulgaria.

Keywords: Colorectal Cancer, Metastasis, Oral Cavity, Mouth Cavity.

Introduction

Metastasis is one the most common pathways of development and progression of rectal cancer. Generally rectal cancer, metastasizes through lymphatic and blood vessels, giving metastases generally in the locoregional lymphatic nodes and also liver and lung-hematogenic metastases. The process of tumor cells leaving their primary site and forming new colonies in distant tissues is described as metastasis. In every type of tumor there is a predominant pattern of organotropism for metastasis. This is a nonrandom process regulated by different cancer cell intrinsic factors, the tumor microenvironment and the interaction between those cancer cell intrinsic factors and the tumor microenvironment and factors from the macroorganism [1,2]. In most of the cases macroorganism itself offers a niche for the growing population of tumor metastatic cells [3]. A great factor for a formation of a premetastatic niche are the proinflammatory cytokines [4]. They are said to create a microenvironment in which following the Paget's "seed and soil" hypothesis, which states that tumors (the "seed") are predisposed to metastasize to certain organs (the "soil") [3]. Proinflammatory cytokines alter the organ's microenvironment for metastatic cell colonization [4]. Not every inflammation can create a premetastatic niche, but the mutual existence of proliferating primal cancer and an inflammatory process can provide the conditions of premetastatic

niche development in distant organs and structures. A case of 73 years old male patient presented with a rectal cancer and metastases in locoregional lymphatic nodes and an atypical metastasis in the gingiva of the maxillary premolars.

Case

73 years old male patient was accepted in the clinic of General and Liver-Pancreatic Surgery, University Hospital Alexandrovska, Sofia, Bulgaria, with complains of: discharge of a bloody type from the anus, appearing in the act of, or post defecation; Periods of constipation followed by periods of a diarrhea; Weight loss and moderate pain in the lower quadrant of the abdomen, which have increased in the last two weeks. Comorbidities of high blood pressure.

Physical examination showed a patient in a moderate physical condition. Pulmonary end cardiovascular status showed no pathological findings. The abdominals status showed a mild to moderate palpatory pain in the lower abdominal quadrant. Palpation and percussion signs of dilatated intestinal loops and collection of gasses inside dilatated colon.

Rectal digital examination found a tumor formation of the rectum,

situated at the middle between the first two thirds of the anal canal. The formation was with a solid consistency and highly lobulated surface. The dimensions of the formation were 4/6 cm and it was obstructing 1/3 of the rectal lumen. The pattern of growth of the formation was bulge type with a central excavation and a wide foundation with an invasive pattern of growth into the surrounding tissues.

The laboratory was without any abnormalities except of a low hemoglobin level-98 g/l, hematocrit 0.31 l/l, which were compensated preoperatively with a blood transfusion.

Instrumental Findings

1. chest X ray showed emphysematous lungs with no other pathologies.
2. Fibro gastroscopy found only a reflux esophagitis II grade, 2 cm hiatal hernia and an erythemo-exudative and erosive gastro-duodenitis. 3/ Fibro colonoscopy gave data of a Tumor formation situated in the distal 1/3 of the anal canal just 1-2cm above the anal sphincter. The dimensions of the formation were 4/6 cm and it was obstructing 1/3 of the rectal lumen. The pattern of growth of the formation was bulge type with a central excavation and a wide foundation with an invasive pattern of growth into the surrounding tissue. Diverticula 0.3-0.5cm long were found in the sigmoid and descending colon. The rest of the colon was with a normal mucosa and no pathologies. A biopsy samples were taken from the rectal formation with histologic finding of an adenocarcinoma of the rectum.
3. Tesla MRT of the abdomen and pelvis found a significantly enlarged lymphatic nodules of the retroperitoneum, situated para-aortic, pericaval and a group behind the body of the pancreas. The dimensions of these lymph nodes were from 15/10 mm to 19/18 mm. In the distal part of the rectum and the proximal part of the anal canal an enlargement of the thickness of the rectal wall was found. A tumor formation was bulging inside the lumen of the rectum and creating a stenosis of 2/3. The dimensions of the formation, measured by MRT imaging, were around 35mm. A solitary moderately enlarged lymphatic nodes, with dimensions 14/9 mm were found in the presacral area and in the pararectal fatty tissue.

The case was presented on an oncology commission and a decision of a preoperative neoadjuvant chemo therapy and radiotherapy, was taken.

After a course of chemotherapy and radiotherapy up to 50 Gy a CT scan was done. The image date showed a slight reduction on the abdominal and perirectal lymphatic nodules, but no reduction of the dimensions of the tumor rectal formation. The patient was prepared for surgery and a Mile's procedure was done, combined with an appendectomy and an omentectomy. Postoperative period was normal and the patient was released from hospital on the twelfth postoperative day.

Biopsy of the operatively removed specimen showed a moderately differentiated adenocarcinoma of the anal canal, post neoadjuvant radio-chemotherapy. Three small remnant focuses of a tumor tissue were found in the submucosa and the surrounding fatty tissue. A prevailing lymphoplasmacytic inflammatory reaction combined

with a fibrosis was found. Nine lymphatic nodules were found and only one was with a metastasis in it. All others were with a sinus lymphadenitis and no metastasis. ypT4N1M0G2.

After three months the patient presented with a complains of an easily bleeding bulge and a painful reddish tumor formation in the mouth situated at the gingiva of the maxillary premolars on the right. A Positron Emission Tomography combined with CT scan was administered to the patient. PET/CT found a metabolite active formation with high FDG uptake in the site of the gingiva of the maxillary premolars on the right, with SUV 14.4. Enlarged metabolite active lymphatic nodes at the right supraclavicular region with dimensions 11/15 mm and SUV max 4.7. Metabolite active lymphatic nodes were found in the abdomen too. These we the groups of retro pancreatic, paraceliacal, paraaortic and perirenal. With dimensions 13/18 mm and SUV max 5.6. No tumor formation or metabolite activity were found in the zone of the surgical procedure (Figure 1).

A biopsy sample form the gingival formation was taken. The biopsy showed a metastasis from a colorectal adenocarcinoma.

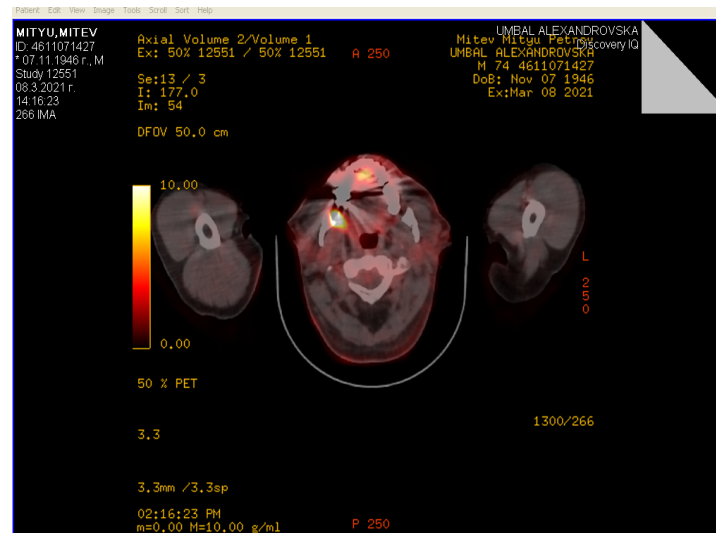


Figure 1: PET/CT image of the gingival metabolite active formation.

Discussion

Distal organ metastasizing is typical for colorectal carcinoma. As presented colorectal carcinoma metastasizes by a haematogenic pathway-giving rise of metastases in the liver and lung, and a lymphatic pathway-to the locoregional lymphatic nodes and also major collectors lymph nodes like retroperitoneal-para-aortic and pericaval. Rectal cancer metastasizes even more frequently in thoracic organs and nervous system [5]. Thoracic metastases are almost as common as liver metastases in rectal cancer. Metastasizing of colorectal cancer into the mouth cavity is very rare. A literature review has shown no more than twenty cases of mouth cavity metastatic localization, and mostly mandibular and gingival. In our case we present a maxillary and gingival localization [8]. As a main reason for such atypical localization inflammation have been suggested to play an important role in the invasion and the process of metastasizing of tumor cells [6,7]. Accepting also the theory of formation of pre-metastatic niche [3] and combining it with Paget's

“seed and soil” hypothesis there can easily be given explanation of such a rare metastatic localization for metastases of rectal cancer. Processes of a normal alteration and degradation proceed in the sixth and seventh decade of life in humans like caries of teeth’s, apical and periodontal granulomas, peri implant inflammations, etc., creating perfect conditions for chronic and acute inflammatory processes to appear. Such a “habitat” can develop perfect conditions for premetastatic niche formation, signaling the malignant tumor to metastasize.

Cases of metastatic rectal cancer in mouth cavity are atypical and rare. During sixth and seventh decade due to a specific condition in the oral cavity a premetastatic niche can easily be formed. In every patient with oncological anamnesis appearance of pain, bleeding and growing formation in the mouth should be treated as a serious complains and a symptom of a progression of the disease.

Conclusion

Metastasizing of rectal cancer in to the mouth cavity is really rare. Combination between factors can create and develop conditions forming a premetastatic niche. Formation of a such can give the metastases a fertile “soil” for progression and developing of a secondary tumor formations in to the oral cavity. Although this is atypical and rare every patient with oncologic anamnesis for rectal cancer who develops symptomatic of a bleeding, pain and a growing formation in the mouth should be treated and examined for a progression of the carcinoma.

Statement of Ethics

Ethical approval was not required for this case report.

Disclosure Statement

Authors declare no conflict of interest.

All authors read and approved the final manuscript.

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