ABSTRACT

According to the database from the National Cancer Registry malignant skin melanoma is one of the most malignant skin tumors. The prognosis of malignant skin melanoma is poor because of its high degree of aggressiveness and tendency to metastases. Metastases in the gastrointestinal tract are frequently found as 80% of the malignant skin melanoma metastases in the digestive tract affect the small intestines.

We present two cases of patients with metastases to the gastrointestinal tract from malignant skin melanoma, where radical surgical interventions on gastrointestinal metastases have been performed.

The presence of distant metastases is the most important prognostic indicator for the survival of the patients with diagnosed malignant melanoma. In both cases presented surgical treatment has been made - resection of the small intestines area affected by the tumor metastases with subsequent anastomosis, observing the principles of operative surgical oncology. The patients were monitored during a period of 6 months and 1.5 years, and their quality of life has been good.

In cases of metastases from malignant skin melanoma in GIT surgical interventions must be performed. This way the survival rate of the patients can be increased and their quality of life can be improved.

KEYWORDS malignant skin melanoma, gastrointestinal metastases, radical surgical treatment

Introduction

According to the database from the Bulgarian National Cancer Registry, malignant skin melanoma is one of the most malignant skin tumors. In 2011, 4783 new cases of skin carcinoma were diagnosed [1]. Concerning the degree of differentiation, malignant skin melanoma is thought to be one of the most aggressive skin tumors [2]. Worldwide, its prevalence tends to increase [1].

There are five clinical forms of malignant melanoma:

- Superficial spreading melanoma is the most frequent type of malignant melanoma. This type accounts for more than 50% of all cases. It appears as a lesion with non-homogeneous coloring, uneven and well-restricted skin edge. It does not invade the deep skin layers and grows peripherally.

- Nodular melanoma is twice more frequent in males than in females. Vertical growth is characteristic. It appears as a prominent dome-shaped formation, with brown to red color.

- Acral lentiginous melanoma is represented by three sub-types: periungual melanoma, palmoplantar melanoma, and mucosal melanoma.
Tumor thickness by Breslow, mitotic rate and the presence of palpable tumor formation in the abdomen, ventral pain, febricine interventions were performed, resulting in an increase in survival. The gastrointestinal metastases.

- Lentigo malignant melanoma is most common in subjects aged 60 to 70. Most often, the lesion affects the face. It appears as a flat dark brown spot that grows from the periphery to the center.
- Achromatic (Amelanotic) melanoma is a rare form, in which the cells do not produce melanin.

The prognosis of malignant melanoma is poor because of its high degree of aggressiveness and tendency to metastasize. Tumor thickness by Breslow, mitotic rate and the presence of ulceration are major indices for determining the clinical stage of malignant melanoma.

Stages of tumor thickness by Breslow:
- Stage I – up to 0.75 mm
- Stage II – from 0.76 to 1.50 mm
- Stage III– from 1.51 to 4.00 mm
- Stage IV – more than 4.00 mm

Revisions to the Melanoma Staging System were published in 2009 by American Joint Committee on Cancer (AJCC) and implemented in 2010. (Table 1)

We present two cases of malignant skin melanoma with metastases in the small intestines where radical surgical interventions were performed, resulting in an increase in survival rate.

Case Report 1

Presented here is the case of a 51-year-old male, diagnosed with malignant skin melanoma of the face, urgently referred to the Department of Coloproctological and Purulent-septic Surgery of the University Hospital, Pleven. Clinical findings included a palpable tumor formation in the abdomen, ventral pain, febricity up to 38.80 C and anemic syndrome. The patient reported a headache lasting for the last two weeks, no defecation during the previous five days. A year before, the patient had been diagnosed with malignant skin melanoma, initially removed by a surgical operation and re-excised a month later. The histological examination proved a thick tumor resection was performed by a team including a vascular surgeon and abdominal surgeons. Almost the entire small intestine was removed, and only 30 cm of the intestine were left proximally to ligament Treitz, and 50 cm distally of the intestine was preserved. The passage was recovered by isoperistaltic latera-lateral jejunoileostomy.

Case report 2:

The second case was 41 year-old-man, diagnosed with malignant skin melanoma in the scalp, admitted as an emergency to the Department of Coloproctological and Purulent-septic Surgery with a palpable tumor formation in the left half of the abdomen. He presented with anemia, febricity of 39 C and no abdominal pain. The patient reported a headache lasting for the last two weeks, no defecation during the previous five days. A year before, the patient had been diagnosed with malignant skin melanoma, initially removed by a surgical operation and re-excised a month later. The histological examination proved a superficial spreading melanoma, in a vertical growth phase, with a thickness of 1.8 mm by Breslow, pT2bN0M0. No mutation of the BRAF was found, and there was no CT scan evidence of metastases at the moment of diagnosing the melanoma. The patient was followed up after the excision of the melanoma.

CT scan of the brain, chest, abdomen and small pelvis was performed after the emergency admission to the Department of Coloproctological and Purulent-septic Surgery. There was evidence of solitary metastasis in the brain, disseminations in the lungs and tumor formation sized 74/54 mm in the abdomen. The tumor in the abdomen was interpreted as originating from the transverse colon. The urgent surgical intervention was undertaken because of the advanced bowel obstruction. During the exploration of the abdominal cavity, six tumor formations were found in the small intestine, 40 cm and 30 cm distal to the ligament Treitz and about 20 cm from the ileocecal valve, causing complete bowel obstruction. The size of the tumor formations varied from 4 to 7 cm in diameter. The most proximally located tumor formation was sized 158/143 mm. The finding was interpreted as infiltrative intra-abdominal tumor process, most likely originating from the transverse colon. Colonoscopy was performed reaching the caecum with no evidence for malignant tumor process was found. The urgent surgical intervention was made because of evidence for bowel obstruction and peritonitis. During the visual and manual intraoperative exploration of the abdominal cavity, a tumor formation was found. It originated from the mesenteric part of the small intestine and weighed about 3 kg. It had caused complete bowel obstruction and compressed the superior mesenteric artery. Enlarged paraaortic lymph nodes were found too. Tumor resection was performed by a team including a vascular surgeon and abdominal surgeons. Almost the entire small intestine was removed, and only 30 cm of the intestine were left proximally to ligament Treitz, and 50 cm distally of the intestine was preserved. The passage was recovered by isoperistaltic latera-lateral jejunoileostomy. There were no complications during the postoperative period, and the patient was discharged from hospital in improved general health. The histological diagnosis was metastases and necrotic zones in the small intestine and the mesenteries originating from achromatic skin malignant melanoma. After discharge, the case was discussed by the Oncology Committee and target therapy was started because of the BRAF positive gene mutation.
## Table 1: TNM Criteria for Cutaneous Melanoma (2010). Adapted from Melanoma of the skin. In: Edge SB, Byrd DR, Compton CC, eds. AJCC Cancer Staging Manual. 7th ed. New York, NY.: Springer, 2010.

| T Classification | Thickness | Ulceration Status/Mitoses |
|------------------|-----------|--------------------------|
| T1               | ≤ 1.0 mm  | a: w/o ulceration, and mitosis <1/mm²  
|                  |           | b: with ulceration or mitoses >1/mm² |
| T2               | 1.01 - 2.0 mm | a: w/o ulceration  
|                  |           | b: with ulceration |
| T3               | 2.01 - 4.0 mm | a: w/o ulceration  
|                  |           | b: with ulceration |
| T4               | >4.0 mm   | a: w/o ulceration  
|                  |           | b: with ulceration |

| N Classification | Metastatic Nodes | Nodal Metastatic Mass |
|------------------|------------------|-----------------------|
| N0               | 0 Nodes          | N/A                   |
| N1               | 1 Node           | a: micro metastasis*  
|                  |                  | b: macrometastasis** |
| N2               | 2-3 Nodes        | a: micrometastasis*  
|                  |                  | b: macrometastasis** |
|                  |                  | c: in-transit met(s)/satellite(s)  
|                  |                  | without metastatic nodes |
| N3               | 4 or more metastatic nodes, or matted nodes, or in-transit met(s)/satellite(s) with metastatic node(s) |

| M Classification | Site | Serum LDH |
|------------------|------|-----------|
| M0               | 0 Sites | N/A |
| M1a              | Distant skin, subcutaneous, or nodal metastases | Normal |
| M1b              | Lung metastases | Normal |
| M1c              | All other visceral metastases  
|                  | Any distant metastases | Normal |
|                  | | Elevated |

*Micrometastases are diagnosed after sentinel lymph node biopsy and completion of lymphadenectomy (if performed),

**Macrometastases are defined as clinically detectable nodal metastases confirmed by therapeutic lymphadenectomy or when nodal metastasis exhibits gross extracapsular extension.
mal were 7 cm in diameter with zones of necrosis. The tumor formations were resected. The passage was recovered by two anastomoses: isoperistaltic lateral-lateral jejunoileostomy and terminal-terminal ileoileostomy. There were no complications during the postoperative period. The patient was discharged from the hospital in better health. The histological investigation showed metastasis with necrotic zones in the small intestine originating from skin melanoma.

Subsequent metastasectomy of the solitary brain metastasis was performed after MRI findings in the brain. The patient reported no headache after the metastasectomy. The Oncology Tumour Board discussed his case, and systemic chemotherapy was started.

Discussion:
The Melanoma Staging Committee of the American Joint Committee on Cancer created a new evidence-based system of staging for malignant skin melanoma. There are four stages according to this classification:

- **Stage I**
  - IA – T1a N0 M0
  - IB – T1b T2 N0 M0
- **Stage II**
  - IIA – T2b T3a N0 M0
  - IIB – T3a T4a N0 M0
- **Stage III**
  - IIIA – T1a T4a N1a/N2a M0
  - IIIB – T1b T4b N1a/N2a M0 or T1a-T4a N1b/N2b M0 or T1a-T4a N2c M0
  - IIIC – T1b T4b N1b/N2b M0, T1b-T4b N2c M0, Any T N3 M0
- **Stage IV**
  - Any T, Any N M1 (a, b or c)

The average survival rate of the different groups depends on various predictive factors. In Stage IV, survival rate depends on two factors: the blood level of lactate dehydrogenase and the localization of the distant metastases. In cases with lung, brain, and small intestines metastases, as in the second case we report, survival rate decreases significantly. In the presence of distant metastases, the average survival rate is 6 to 9 months. [2]

Metastases in the gastrointestinal tract are frequently found. The most common location of metastases in gastrointestinal tract include the small intestine, liver, large intestine and the anorectal part of the colon [3]. Eighty percent of the malignant skin melanoma metastases in the gastrointestinal tract affect the small intestine [3, 4, 5, 6]. The lesions are found predominantly in the distal jejunum or ileum. It is accepted that the predilection place for metastases of malignant skin melanoma in the small intestines is due to the abundant blood supply [7]. Metastases in the small intestines most often cause bowel obstruction and, less often, bleeding from the gastrointestinal tract. Gastrointestinal metastases grow fast because of the blood supply. They necrotize, ulcerate and lead to peritonitis in the later stages. Urgent surgery is indicated. The resection of the small intestine with subsequent anastomosis is precarious in cases peritonitis and malnutrition. That is why surgical treatment should be undertaken during the early clinical stages.

In both the cases presented, surgical treatment was performed: resection of the small intestines area affected by the tumor metastases with subsequent anastomoses. The patients were discharged from the hospital in better health; their intestinal passage was recovered, and they were capable of taking food and doing their daily physiological needs. Monthly CT scans of the head, chest, abdomen and pelvis were performed, as well as monthly checks of serum lactate dehydrogenase for six months and 1.5 years, respectively. The patients’ quality of life was satisfactory. Specific target therapy was applied in the first case while immunotherapy was used in the second instance. At present, the patients are still alive.

There are cases of higher survival rate in patients with distant metastases in GIT reported in the medical literature due to radical surgical intervention on the metastases combined with adjuvant therapy [4, 8, 9, 10]. Surgical interventions for their radical elimination should be taken in the cases when such metastases are found. The removal of gastrointestinal metastases leads to decreased tumor intoxication. On the other hand, the small intestines metastases produce symptoms of intestinal obstruction, which causes inability in such patients to defecate and take food. The metastases may also lead to acute bleeding from GIT appearing as hematemesis and/or melena, both of which that require urgent surgical intervention.

In cases of patients operated because of malignant melanoma with complaints from the gastrointestinal tract, one should consider malignant skin melanoma metastases in the first place [4]. Surgical intervention on the metastases has been reported to improve the quality of life of the patients, which fact is confirmed by the two cases we report.

Cases of symptomatic gastrointestinal metastases require radical surgical treatment because such treatment reduces the symptoms and increases the survival rate [11]. Because of the high frequency of gastrointestinal metastases from malignant skin melanoma and their frequent localization in the small intestines, close monitoring of the patients with diagnosed malignant melanoma is recommended. It must include contrast intraluminal investigation of GIT, contrast CT scan of the abdomen and endoscopy with biopsy [4, 5].

Conclusion:
The two case presented to confirm the data reported in the literature. Early detection of metastases in the gastrointestinal tract from malignant skin melanoma and their radical surgical treatment would improve the quality of life of patients with melanoma and increase survival.

Competing Interests
The authors declare no conflict of interest.

References
1. Valerianova Z. Distribution of the malignant skin melanoma – status, tendency, and prognosis. A collection of abstracts for malignant skin melanoma. Pravetz, Bulgaria, June 2014, page 2.
2. Chodurek E., Orchel A., Orchel J., Kurkiewicz S., Gawlik E. Malignant melanoma metastatic to the gastrointestinal tract. AJR:166, April 1996.
3. Mantas D., Tsaparas P., Charalampoudis P., Gorgas H., Kourakis G. Emergency surgery for metastatic melanoma. International journal of surgical oncology. 2014, vol. 2014, 4 pages.
4. McDermott V., Low V., Keogan M., Lawrence J., Paulson E. Malignant melanoma metastatic to the gastrointestinal tract, AJR:166, April 1996.

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5. Ettahri H., Elomrani F., Elkabous M., Rimini M., Boutayeb S., Mrabti H., Errihani H. Duodenal and gallbladder metastasis of regressive melanoma: a case report and review of the literature. Journal of gastrointestinal oncology. 2015 Oct; 6(5).

6. Silverman J., Hamlin J. Large melanoma metastases to the gastrointestinal tract. Gut. 1989 Dec; 30(12):1783-5.

7. Blazej Z., Carlson A., Granese J., Ross J., Mihm M., Jr, Slominski A. Current concepts of metastasis in melanoma. Expert Rev Dermatol. 2008 Oct; 3(5):569-585.

8. Sourani N., Trojan A., Raab H., Antolovic D. Gastric metastasis of malignant melanoma: report of a case and review of available literature. Viszeralmedizin. 2014 Aug; 30(4):273-5.

9. Goral V., Ucmak F., Yildirim S., Barutcu S., İleri S., Aslan İ et al. Malignant melanoma of the stomach presenting in a woman: a case report. Journal of medical case reports. 2011 Mar 9;5:94.

10. Dickson P., Gershenwald J. Staging and prognosis of cutaneous melanoma. Surgical oncology clinics of North America. 2011 Jan; 20(1):1-17.

11. Kawashima A., Fishman EK, Kuhlman JE, Schuchter LM. CT of malignant melanoma: patterns of small bowel and mesenteric involvement. Journal of computed assisted tomography. 1991 Jul-Aug; 15(4):570-4.