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Primary malignant melanoma of the gastrointestinal tract : a case report and review of the literature

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Abstract

Although most gastrointestinal melanomas are metastatic of origin, primary malignant melanomas of the gastrointestinal tract do exist. Over the last ten years, we encountered six patients with primary malignant melanoma of the mucosal lining of the gastrointestinal tract. The literature is reviewed, the pathophysiological aspects of these tumours are described and the surgical treatment is discussed. (Acta gastroenterol. belg., **2007**, 70, **367-370**).

Key words : metastatic gastrointestinal melanoma, primary anorectal melanoma, primary oesophageal melanoma, primary gastrointestinal melanoma.

Introduction

Primary melanomas of the gastrointestinal (GI) tract are rare. In the last ten years we have encountered six patients with malignant melanoma of the GI tract without evidence of cutaneous or ocular localisation of melanoma. One patient with a malignant melanoma of the oesophagus is presented as a case-report to illustrate the insidious nature of malignant melanoma of the GI tract. We also performed a research of the literature with respect to primary melanoma of the gastrointestinal tract. The clinical characteristics of our patients and those found in the literature are evaluated. Furthermore, the diagnostic and treatment strategies are discussed.

Case report

A 77 year old Caucasian female patient presented with dysphagia and a restrosternal burning sensation, not responding to proton pump inhibitor therapy. There was no weight loss, anorexia, melena and there were no other gastrointestinal symptoms. Her medical history revealed a tuberculosis infection in childhood without relapses. Physical examination was unremarkable and laboratory data revealed no abnormalities. A gastroduodenoscopy was performed which revealed a double tumour in the oesophagus stretching out over six centimetres.

Biopsies showed a malignant melanoma (Fig. 1). A second physical examination was performed with special emphasis to skin and retina abnormalities, but no melanoma was found.

Staging analysis was performed. The chest X-ray showed only lesions compatible with scarring of an old tuberculosis infection. Computer tomography of the abdomen disclosed no liver or lymphatic metastases.

Subsequently, a transhiatal oesophagus resection was performed, with an uncomplicated postoperative course. Histology confirmed radical resection of two separate localisations of malignant melanoma spreading into mucosa and submucosa (Fig. 2).

A half year later, our patient developed dizziness. A CT-scan of the brain was performed which revealed no metastases.

Two years after diagnosis of primary oesophageal melanoma, a follow-up CT-scan showed multiple lung and liver metastases, without any treatment options. Her condition deteriorated and she died 2.5 years after the initial diagnosis.

Discussion

The presented patient and the other patients presented in table 1 suffered from a primary malignant melanoma of the gastrointestinal tract. Primary malignant melanomas of the GI tract are rare. Malignant melanoma can arise in all mucosal sites, but the oesophagus and anorectal region are the two most likely primary sites of GI melanomas. For a long time, the existence of primary melanoma of the gastrointestinal tract was doubted, but studies confirmed the presence of melanocytes in mucosal regions (1-3). From these melanocytes melanoma can develop. The source of gastrointestinal melanocytes, are melanoblastic cells of the neural crest that are migrated to the gastrointestinal mucosa, especially in the oesophagus and anorectal region (4).

In contrast, most melanomas found in the gastrointestinal tract are metastatic of origin. In fact, up to 60% of patients with disseminated melanoma have GI metastases at autopsy, second only to metastasis of the lungs (5). The most common site of GI metastatic melanoma is the small intestine (6), but reports of

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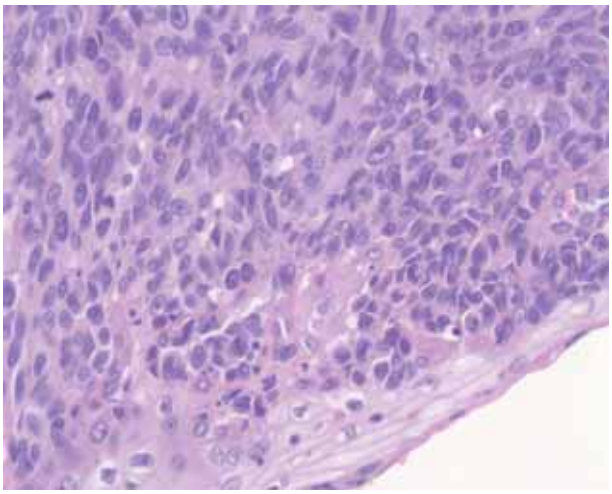

Fig. 1. — Fields of atypical melanocytes covered by squamous epithelium in the right lower corner (H&E stain) (obj. 40×).

Fig. 2. — An exophytic tumour consisting of closely packed melanocytes under a thin layer of squamous epithelium (H&E) (obj. 5×).

metastases to the colon, gall bladder, oesophagus and stomach are also published (7-10).

Differentiation between a primary gastrointestinal melanoma and metastasis from an unknown or regressed cutaneous malignant melanoma can be very difficult. Differentiation depends on both the clinical and histopathological features. Indications for primary melanoma of the GI tract are : 1) no history of cutaneous or ocular melanoma, 2) presence of precursor lesions or melanosis, 3) a solitary gastrointestinal melanoma without evidence of extra-intestinal metastases, 4) in situ changes of the gastrointestinal epithelium, with presence of melanoblasts in the basal layer. 5) localisation of melanoma in anorectal or oesophageal mucosal lining (11-13). An additional criterion that is proposed is disease free survival of at least 12 months after curative surgical resection. The mean survival of patients with metastasised melanoma of unknown origin is only

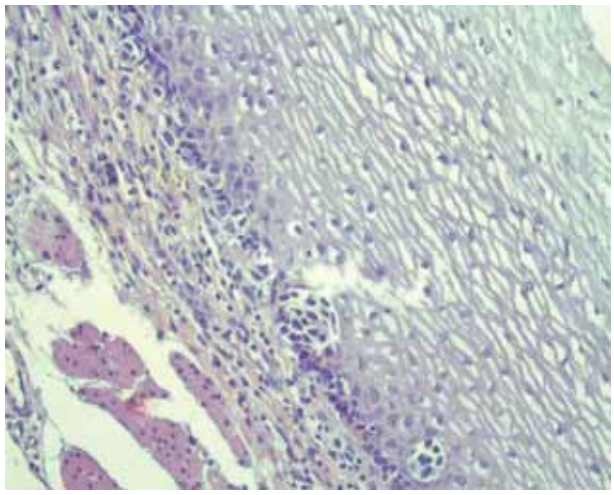

Fig. 3. — Junctional activity and an epithelial localisation of atypical melanocytes (arrow). These findings are suggestive of a primary localisation of this melanoma (H&E stain) (obj 20×).

7.5 months and resection will not influence survival (14). This emphasises the importance to differentiate between metastatic and primary gastrointestinal melanoma. In our patient all features, except for melanosis, were present. Figure 3 shows in situ change of the epithelium adjacent to the main tumour mass in our patient.

Four of our patients suffered from primary malignant melanoma of the anorectal region. This is the most common site of primary gastrointestinal malignant melanoma. Still, it is a rare disease, representing only 0.05% of colorectal malignancies and 1% of anorectal malignancies (15). There is a female predominance, with a peak incidence between the sixth and seventh decade (15-17). In our patient-group, we found a female-male ratio of three to one. Symptoms associated with anorectal melanoma are rectal bleeding, pruritus ani and tenesmus. Endoscopically, most tumours appear as black, dark brown nodules or polyps (18). Anorectal melanomas are most likely to metastasize to pelvic and inguinal lymph nodes, lung, liver and bones.

Tumour thickness has got prognostic values. A tumour thickness < 2 mm is associated with significantly better survival (17,19). Treatment of choice is wide local resection. Abdominoperineal resection of a rectal melanoma does not improve survival and is associated with higher morbidity (17,20,21). When in doubt, endoscopical ultrasound can be used for delineating lesions amendable to wide local excision (22). Overall, prognosis is very poor, with a 6-22% 5-years-survival rate (16,20). In our patient-group, all cases had similar characteristics compared to the literature and the 5-years-survival rate of patients in follow up was 0%, in accordance with the poor prognosis. Furthermore, three of our patients had metastases at presentation. In concordance with the literature, we recommend wide local resection for patients with anorectal melanoma. If

Table 1. — **Characteristics of patients with gastrointestinal melanoma**

Patient	Age (yr)	Sex	GI-site	Symptoms	Metastases	Occurrence of metastases	Survival	Treatment
A	77	F	oesophagus	Dysphagia, pyrosis	Liver, lung	1 $^1/_2$ years	2.5 years	Oesophageal resection
B	72	F	Anorectal region	Constipation, Anal blood loss	Bone, colon	At diagnosis	$^1/_2$ years	Endoscopic resection
C	72	F	Anorectal region	Constipation, Anal blood loss	Bone, colon	At diagnosis	$^1/_2$ years	Endoscopic resection
D	82	F	Anorectal region	Anal blood loss	Lymph nodes, liver	At diagnosis	< 1 year	Palliative colostomy and radiotherapy
E	64	M	Anorectal region	Anal blood loss	Lymph nodes	At diagnosis	NA	Local excision
F	40	M	gingiva	Irritation of dental prosthesis	Lymph nodes, brain, lung, bone	1 year	5 years	resection

NA : not available.

available, endoscopic ultrasound should be used to identify lesions amendable for local excision.

One of our patients presented with a melanoma of the rectum. In this patient a subcutaneous melanoma of the right upper arm was found simultaneously. For this reason, the primary origin of the rectal melanoma could be debated. On the other hand, evidence that support the speculation of a primary melanoma of the gastrointestinal tract in this patient is the lack of axillary metastasis. This makes the possibility of metastatic disease from this site unlikely. Furthermore, a thorough search for ocular and cutaneous lesions also revealed no abnormalities. For this reason, we believe that the rectal melanoma in this patient is of primary origin also.

The second most common site of primary gastrointestinal melanoma is the oesophagus. Only 0.1-0.2% of all oesophageal malignancies are melanoma (23). This accounts for only three patients per year in the Netherlands.

Primary melanoma of the oesophagus is more prevalent in men then in women, with a mean age at diagnosis of 62 years (24). The presentation is the same as those caused by other oesophageal malignancies, with dysphagia, pyrosis, weight loss and melena being the most common symptoms (25). Most melanomas are large, stenosing, polypoid tumours, sometimes accompanied by satellite tumours around the primary tumour (26). Oesophageal melanomas tend to metastasize to lymph nodes, liver and lung. The treatment of choice is radical resection, with a mean survival of 14.2 months, compared with a mean survival of only 9 months after local resection (24). In cases in which surgery is not possible, palliative radiotherapy can be helpful (27). Our patient survived for more then two years after surgery and had a reasonable quality of life in this period. Because of lack of treatment options after recurrence of malignant melanoma of the gastrointestinal tract, follow-up computer tomography after radical resection may be debatable. In sporadic cases, however, successful treatment of recurrence with complete response was observed (28-30).

Conclusion

Malignant melanoma of the GI tract are most likely to be metastatic of origin. However, primary malignant melanomas of the mucosal lining of the gastrointestinal tract although rare, do occur. Especially when biopsy shows melanoma in the oesophageal or anorectal mucosal lining the diagnosis primary gastrointestinal melanoma should be considered. In the management of this malignancy, a multidisciplinary team of gastroenterologists, surgeons, dermatologists, ophthalmologists and pathologists should be involved. Melanoma of the gastrointestinal tract should be considered in the differential diagnosis of primary gastrointestinal tract malignancies, especially in the oesophagus and anorectal region.

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