

Small bowel metastases from melanoma : does videocapsule provide additional information after FDG positron emission tomography ?

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Abstract

Finding small bowel metastases of melanoma can be important because surgical removal of unique small bowel metastasis of melanoma could improve survival. In this study, we evaluated if capsule endoscopy provides additional information after Pet CT has been performed. In this series of 9 patients collected from 3 university centers, capsule endoscopy influenced the therapeutic decision (to perform or not a surgical segmental resection) in 2/9 patients. All metastatic lesions were found in the proximal bowel. Capsule identified jejunum metastases in one case while Pet CT was negative, and identified metastases while Pet CT result was not conclusive. In one case PET CT identified mesenteric metastases while capsule was negative. SBCE influenced therapeutic decision in 2/9 patients concerning the decision of performing small bowel resection or not. In 1 patient SBCE changed the stage of the disease without affecting medical therapeutic strategy. The prognosis of patients with positive PET and/or capsule findings is very limited (2/3 died within the year). In selected patients, capsule endoscopy can provide complementary information once PET CT has been performed. (Acta gastroenterol. belg., 2012, 75, 219-221).

Key words : videocapsule, melanoma, small bowel, metastases, FDG PET.

Introduction

Small bowel capsule endoscopy (SBCE) is a useful tool for detecting small bowel tumors, primary or metastatic (1-3). Melanoma is a tumor diagnosed with increasing frequency in different regions of the world. The incidence of malignant melanoma has been increasing in white populations (4-6) and is responsible for almost 77% of lethal skin neoplasia (7).

The prognosis has been improving due to earlier diagnosis in a curable stage.

Metastatic melanoma is an incurable disease with high mortality rate. Patients with metastatic disease have an average survival of less than 1 year.

Metastases from melanoma in the small bowel have been described in 1.5% to 4.4% of patients having previously removed skin melanoma and in 58% of post-mortem specimens (8). Finding small bowel metastases of melanoma can be important as mentioned in a recent publication, because surgical removal of unique small bowel metastasis of melanoma could improve survival of patients (9). These findings stress the need for correct identification of metastases in the small bowel.

For the detection small bowel metastases, it has been suggested that SBCE could be superior to other tech-

niques inclusive the 18F-fluorodeoxyglucose (FDG) positron emission tomography (PET CT) (10,11). Furthermore, Prakoso *et al.* showed on a limited number of patients that SBCE and FDG PET-CT scanning are rather complementary in the localization of small bowel melanoma and propose SBCE as a complementary test in patients with known metastatic melanoma undergoing pre-operative work-up and in those with unexplained anemia or gastrointestinal symptoms (12).

The aim of the present study is to evaluate if SBCE can provide additional information after FDG PET-CT scanning has been performed. Pet scan is indeed the most employed technique for the follow-up of melanoma patients. The potential clinical impact of SBCE findings near FDG PET-CT scanning was also evaluated.

Patients and methods

The files of patients referred in the context of known melanoma were collected from January 2006 to February 2011 in 4 Belgian academic medical centers (tertiary). All patients were referred on the basis of established diagnosis of skin melanoma. In all patients, a FDG PET-CT scanning was first performed, conform to the classical follow-up. When Pet scan suspected abdominal involvement, and / or in the presence of history of small bowel resection for melanoma metastasis or iron deficiency anemia (IDA) or obscure gastrointestinal bleeding (OGIB), a SBCE was performed after the FDG PET-CT scanning.

The following information was gathered from the patients' files : age, sex, results of the FDG PET-CT, indication for performing SBCE, and influence on the further staging and/or therapeutic modalities. SBCE was performed using the M2A capsule and later the Smart Pill from Given Imaging (Yoqneam, Israel). Pictures were reviewed and selected by two experienced capsule users of the UZBrussel (Vrije Universiteit Brussel).

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Table 1. — Characteristics of patients are presented. Results of PET and capsule endoscopy, indication for performing capsule examination and impact of treatment of capsule results as well as clinical evolution at one year are presented

	Age, sex	Staging	PET result	Findings capsule	Indication capsule	Impact on treatment	Clinical evolution at one year
1	78, M	IV	(+), mesenteries	(-)	IDA, ATCD SB resection	No	Death
2	51, F	IV	(-)	(-)	ATCD SB resection	No	Evolutionary disease
3	48, F	IV	(+) mesenteries	Melanoma metastasis jejunum	ATCD SB resection, IDA	No	Death
4	44, M	II	(-)	Melanoma metastases jejunum	IDA	Yes, changing stage of disease	Death
5	29, M	IV	(-)	(-)	ATCD SB resection	No	Non evolutionary disease
6	59, F	IV	(-)	(-)	ATCD SB resection	No	Non evolutionary disease
7	51, F	IV	Dubious findings	Diffuse jejunum metastases	IDA	Yes. No SB resection	Death
8	69, M	IV	SB hypermetabolic spot	Unique proximal jejunum metastasis	OGIB	Yes (SB resection decision confirmed)	Death
9	68, M	IV	Duodenal metastasis	Duodenal metastasis	OGIB, Pet +	No	Death

Results

In all cases the capsule could reach the caecum. No case of capsule retention occurred.

A total of 9 patients were referred to the centers for the reasons mentioned above, after the Pet scan was performed. Mean age of the patients was 54, 6 y (29-78). There were 5 men and 4 females. In 5 patients, there was a story of former small bowel resection for metastasis.

PET CT was positive in 4 cases (2 mesenteric spots, 1 duodenal spot and 1 small bowel spot) and dubious in one case.

Capsule was positive in 5 cases (4 jejunal lesions and 1 duodenal lesion). Capsule examination failed to identify metastasis in one case (case 1 : mesenteric metastasis without intraluminal lesion). Capsule identified diffuse superficial intestinal metastases in one case while Pet CT result was dubious (case Nr. 7).

In 6 patients SBCE was performed for IDA/OGIB and was positive in 5/6. In two of these patients, there was a combination of former bowel resection for metastasis and IDA/OGIB. Specific indications for performing complementary SBCE capsule endoscopy are presented in table 1. Endoscopic aspects were heterogeneous : submucosal black bulging, bleeding or non bleeding intraluminal mass, flat black lesions with peripheral white halo – we called this last kind of lesion “solar eclipse picture” in a recent publication (10) – or without peripheral white line. In some patients, different types of lesions were present. In 2 cases, duodenal metastasis (third duodenum) was also confirmed by double balloon endoscope.

SBCE influenced therapeutic decision in 2/9 patients : 1 small resection avoided due to multiple metastases (Nr. 7), and 1 confirmation of the decision to perform bowel resection (Nr. 8). In 1 patient, SBCE changed stage of the disease without affect medical therapeutic

strategy (case Nr. 4). Six of the 9 patients (67%) died within the first year. All deceased patients had a (+) Pet scan and/or a positive SBCE examination.

Discussion

Melanoma is a tumor diagnosed with increasing frequency in different regions of the world. One of the highest incidence rates is in Queensland, Australia (8). The incidence of malignant melanoma appears to be lower and stable in dark skin individuals (Africans, Native Americans, Asians, and Hispanics). With increased life expectancy of the elderly population, melanoma will be a public health challenge. In a recent study, Prakoso *et al.* showed on a limited number of patients that SBCE could be superior to Pet CT on localizing small bowel melanoma and present SBCE as an ideal complementary investigation modality in patients with known metastatic melanoma undergoing pre-operative work-ups and in those with unexplained anemia or GI symptoms (12). The large majority of our patients had comparable findings at Pet CT and SBCE, but the advantage of SBCE is that it identifies easier intraluminal metastases. On the contrary, the Pet CT can identify mesenteric mass. Both procedure are thus rather complementary as mentioned in the study of Prakoso *et al.* (12), in some cases to avoid unnecessary surgery (when different metastatic small bowel sites are found), in some other cases to confirm there is a solitary metastasis in the small bowel. Similarly with the study of Prakoso *et al.*, we found small bowel metastases exclusively in the proximal part of the small bowel, duodenum and jejunum. As a matter of fact, the prognosis of patients with either Pet CT or SBCE positive findings is poor. Survival is off course much better if both examinations show no recurrence. In this last group of 3 patients, SBCE was performed keeping in mind the previous history of small bowel resection

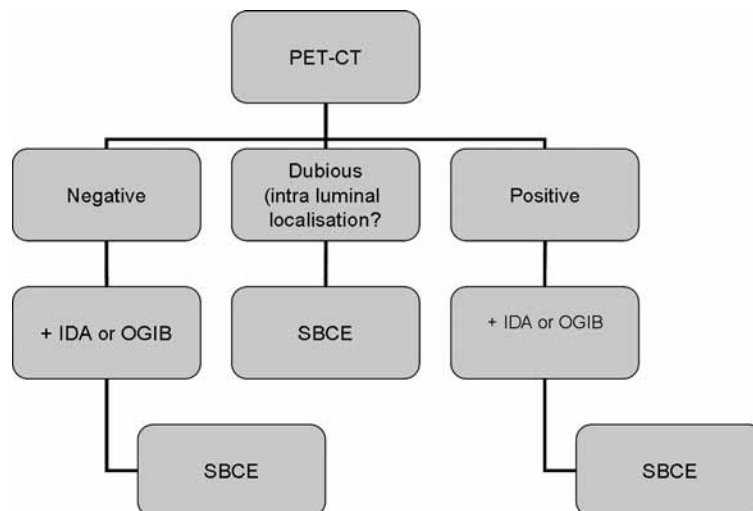


Fig. 1

for melanoma metastasis. While SBCE can be complementary to Pet CT, the limitations of this technique are well known in neoplastic diseases: risk of retention, poor precision in the localization of lesions through the small bowel, absence of specific aspect of most neoplastic lesions and no possibility to take tissue samples. Concerning this last point, and considering that small bowel metastases in our small series were found relatively proximally, an approach by double- or single balloon enteroscopy is probably a valuable alternative: better quality of pictures, and biopsy specimens possible. But this procedure is of course more invasive. Enteroclysis is limited by its inability to detect superficial mucosal lesions without mass effect.

In summary, in this retrospective study, where performing a SBCE was decided by clinicians and not following a prospective protocol, SBCE appeared to be complementary to Pet scan. We recommend to perform Pet CT as first, and SBCE in case of dubious Pet CT (intraluminal localization or not, uncertain localization) and in patients with advanced disease and IDA and/or OGIB (Fig. 1). The impact on therapy is of course limited in this category of patients with advanced disease, but it can influence the clinician in taking decision of small bowel resection.

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