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Case Report

Scalp junctional nevus with malignant transformation (melanoma) metastatic to parotid lymph node region, cervical lymph nodes and the back: a case report and review of literature

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Abstract: Parotid malignancy may occur as a primary neoplasm of the salivary tissue or as metastatic involvement of the parotid lymph nodes. Primary tumors of squamous cell carcinoma and malignant melanoma involving the skin of the head and neck have the potential to spread to lymph nodes of the parotid gland. Metastatic malignant melanoma to the back was exceptionally rare and no such reports have been noted in the literature. We reported an exceptional case of intraparotid lymph nodes metastasis of the right scalp junctional nevus with malignant transformation to malignant melanoma in a 48-year-old man. The patient presented with a mass in the parotid gland area, which was misdiagnosed as a primary parotid tumor and surgical removal was performed. Unfortunately, recurrence with newly developed metastatic lesions in the back and cervical lymph nodes occurred 1 year after initial surgical management. This case is presented highlighting the unusual features of metastatic junctional nevus with malignant transformation to malignant melanoma of intraparotid lymph nodes, cervical lymph nodes and the back, which should help us to reduce misdiagnosis and obtain the best results.

Keywords: Parotid gland, junctional nevus, melanoma, back, metastasis

Introduction

Malignant melanoma as one of the most malignant tumors, originated from pigment cells and nevus cells. It is prone to regional lymph node and distant metastases. The invasive degree and mortality rate are high, and the prognosis is poor. Metastatic malignant melanoma of the parotid gland region is rare, representing 8-15% of all malignant melanomas in the head and neck region, and accounting for less than 1 percent of all melanomas [1]. The parotid gland is an unusual site for metastases. However, the glands and its associated lymph nodes can sometimes be involved by metastases from head and neck carcinomas as well as cutaneous melanomas [2-5]. However, metastatic malignant melanoma to the back was extremely rare. To our knowledge, no case has been reported in the literature. Here we reported a case of the parotid lymph nodes metastatic scalp junctional nevus with malignant transformation to malignant melanoma, which was misdiagnosed as a primary parotid tumor. Then recurrence with metastases to the back and cervical lymph nodes occurred 1 year after first surgery. The clinical outcome of the patient and brief review of the literature are presented.

Case report

A 48-year-old man presented with painless mass in the below of the right parotid area, which had been rapidly enlarging over a period of 2 months in 2012. No swelling, skin temperature elevation, cough, expectoration, chills, fever and night sweats presented. He had been diagnosed with “lymphadenitis” in the local hospital, but the treatment history was unknown, which yielded little effect. Physical examination revealed a movable mass with diameter of 4 to 5 cm in the right parotid gland just below the anterior border of the sternocleidomastoid muscle, which had clear boundary with mild tenderness. No wave motion toward percussion, vascular congestion and ulcer or

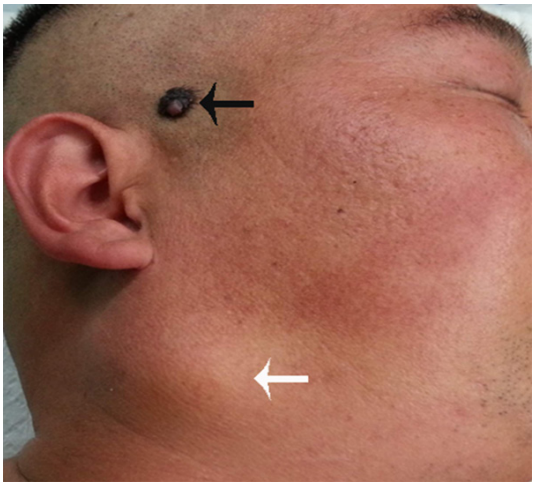

Figure 1. The 4 cm × 5 cm mass in the sternocleidomastoid muscle surface of the parotid gland region, preoperative finding (white arrow). The pigmented scalp lesion, postoperative finding (black arrow) .

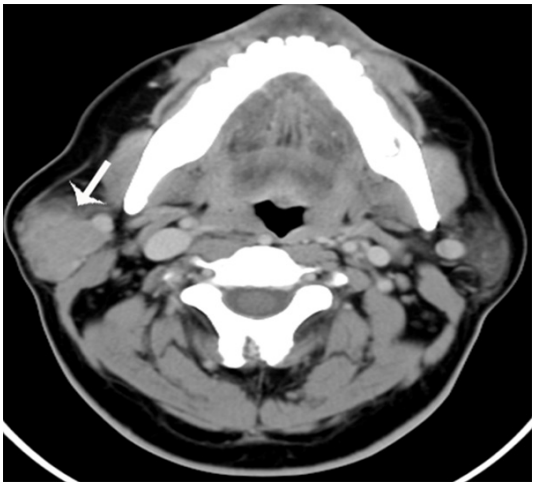

Figure 2. Enhanced computed tomography scan of the maxillofacial and neck shows a 2.5 cm × 3 cm × 4 cm mass at the right parotid area with uniform density.

erosion of the overlying skin was found (**Figure 1**). Enhanced computed tomography (CT) showed a 2.5 cm × 3 cm × 4 cm mass with enhanced intensity that involved the right parotid gland. The density of mass was uniform, and the boundary was clear. The diagnosis was suspected as right mixed tumor of parotid gland (**Figure 2**). Fine needle aspiration cytology revealed the malignant tumor cells. Therefore, a diagnosis of metastatic adenocarcinoma or transfered like epidermoid carcinoma was made. PET-CT revealed 2.5 cm × 3 cm × 4 cm soft tissue mass of the right parotid

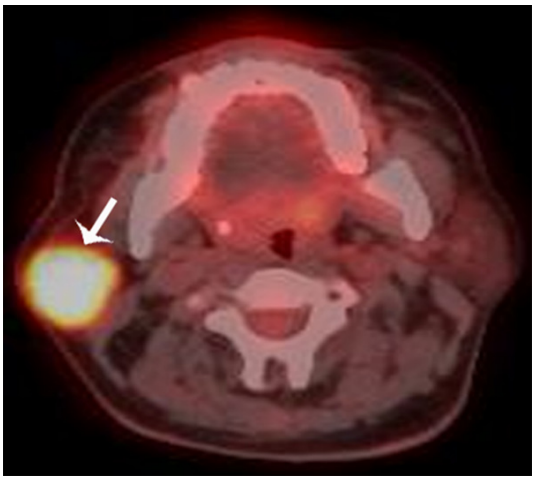

Figure 3. PET-CT scan reveals a well-defined mass measuring 4 cm in maximum transverse diameter in the right parotid gland, with clear boundary.

area, with clear boundary. Radionuclide concentration could be found with a maximal SUV of 15.5. Abnormal cervical lymph node and imaging agent distribution in the right submaxillary region were not found. Considering the diagnosis was primary malignant tumor of the parotid gland possibility (**Figure 3**). The patient underwent a total parotidectomy and dissection of facial nerve without cervical lymph node dissection. Intraoperative frozen pathology of the parotid lymph tissue revealed malignant tumor cells. After skin preparation, a scalp pigmented lesion was discovered hidden by overlying covering hair (**Figure 1**). So the right scalp mass was also removed, accounting of primary malignant tumor of the parotid gland, no intraoperative frozen pathological test was performed. Postoperative pathologic examination with immunochemical staining revealed that S100 protein (**Figure 4C**) and HMB45 (**Figure 4D**) were positive. The histological examination confirmed the diagnosis of right scalp facial junctional nevus with malignant transformation and intraparotid lymph nodes metastatic malignant melanoma (**Figure 4A**, **4B**). The patient refused further cervical lymphadenectomy, postoperative adjuvant radiotherapy, chemotherapy and/or immunotherapy. One year after first surgery, the patient was readmitted to the hospital with recurrence of neck masses. CT scans showed multiple lesions in the right side of the neck root (**Figure 5**). PET-CT revealed multiple lymph node enlargements in the right parotid area, right neck root and back muscles at the level of L2 vertebrae. Some lymph nodes

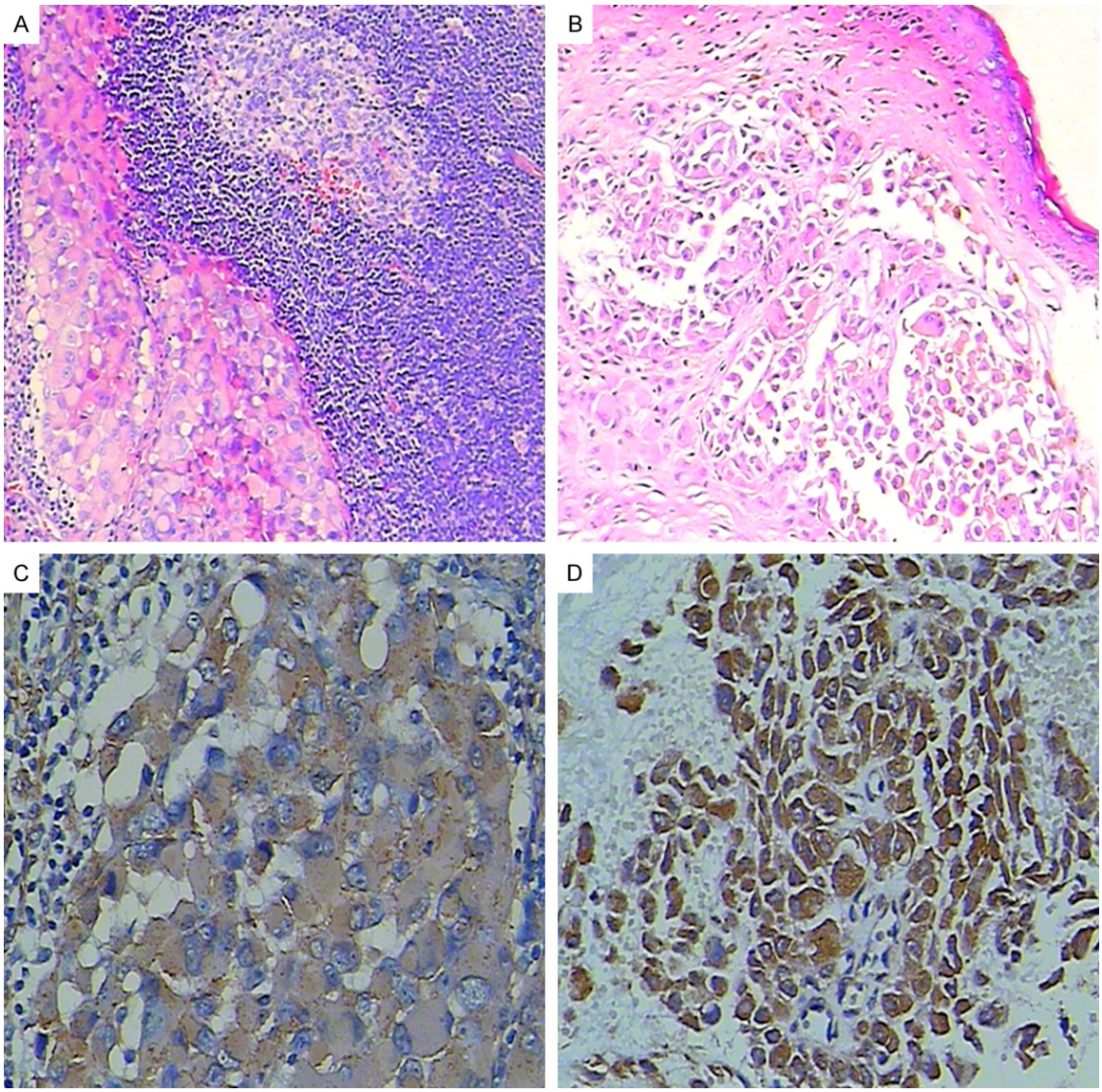

Figure 4. Histological examination demonstrates diffuse infiltrates of malignant cells with large pleomorphic nuclei and prominent nucleoli on intraparotid lymph node (A. HE stain 100×) and the melanin cell in malignant transformation zone of junctional nevus (B. HE stain 100×). Immunohistochemical examination demonstrated positively for S100 and HMB-45 (C. S100 200×, D. HMB45 200×). The positive reaction (brown cytoplasmic reaction) supports the diagnosis of malignant melanoma.

fused into clusters and the sugar metabolism increased, which indicated lymph node metastasis (**Figure 6**). Fine needle aspiration cytology of the neck and back masses confirmed the diagnosis of metastatic malignant melanoma. Back mass resection and functionally radical resection of right cervical lymph node were performed. Pathological examination showed the lesions were infiltrated by a tumor composed of fascicles, and sheets of large oval to polygonal cells with abundant eosinophilic cytoplasm and hyperchromatic (**Figure 7A**, **7B**). Immunohistochemistry showed positivity of the tumor cells for S-100 protein (**Figure 7C**) and Vim (**Figure 7D**). A diagnosis of metastatic melanoma of the back and cervical lymph nodes was made. The patient was transferred to the department of oncology for further comprehensive treatment. There was no sign of recurrence 1 year after the second admission.

Discussion

Malignant melanoma is a malignant tumor that derived from the melanin cell in the skin or mucosal basal, accounting for 1% to 3% of the

Figure 5. Enhanced computed tomography scan demonstrates the new multiple lesions in the right side of the neck root.

malignant tumors. The worldwide incidence of malignant melanoma is increasing dramatically, approximately 20% of all melanomas occur in the head and neck region [6, 7] and the annual growth rate has been estimated to range from 4% to 5%. Facial malignant melanoma occurs on the basis of pigmented nevus, often forming large nevus cells of junctional nevus or compound nevus with malignant transformation. When the nevi are affected by chronic infection, injury, and other undesirable stimulation or improper treatment of pigmented nevus, parts of nevi are transformed to malignant melanoma. In our case, the patient with malignant melanoma is derived from junctional nevus with malignant transformation. Malignant degree is high, and early metastasis is likely, with about 70% of regional lymph node metastasis in the early stage.

Because lymph nodes metastases of the parotid gland region were extremely, enhanced CT and PET-CT scan did not detect the right scalp facial mass as the site of the primary tumor, and the mass located in the sternocleidomastoid muscle surface of the parotid gland region, the parotid mass was thought to be a primary parotid gland malignant carcinoma and ablated the parotid gland. In this case, possibly due to the lack of the knowledge of the salivary gland region metastasis that arises from primary tumors located in the head and neck, mainly malignant melanoma and squamous cell carcinoma and overdependence on the assistant examinations, we misdiagnosed this tumor as a primary parotid malignancy. This case enlightened us to care the patient with careful work attitude and good subspecialty knowledge so as to provide effective and correct treatment for the patients. The parotid gland is an unusual site for metastases. Involvement of the parotid gland in malignant melanoma most commonly results from intralymphatic spread of tumor to the gland and adjacent lymph nodes and without effects on the gland itself. Malignant melanoma is an aggressive malignant neoplasm associated with poor prognosis especially at advanced stages. The prognosis of malignant melanoma varies significantly with the survival duration ranging from 10 months to 5 years, and the estimated 5 year survival rate is 6% [8, 9]. And survival is dependent on the tumor infiltration, diffusion and the scope of metastasis [10, 11], extent of resection and postoperative treatment and so on. Cervical lymph node metastases and distant metastases are the major negative predictors for long-term survival. Primary melanomas arising in the head and neck region are reported to have a worse prognosis than those originated elsewhere [12, 13]. At present, a multidisciplinary treatment combination is considered a significantly improving the survival rate of malignant melanoma way. Surgery might play an important role for an appropriate candidate, and it may increase survival in some cases [14]. The range of primary tumor resection and lymph node dissection should be extensive and thorough. Fails to take lymph node resection during the first surgery and adjuvant treatment after surgery were the main causes of postoperative recurrence in our case. Although metastases of malignant melanoma were reported to occur in bladder [15], small bowel [16], and brain [10] etc, metastatic malignant melanoma to the back is extremely rare in clinical practice, no reports have been noted in the literature.

In summary, malignant degree of melanoma is high; the surgical operation treatment program may be an effective treatment strategy for malignant melanoma, which is worth further clinical discussion and research. The principle of operation is extensive and thorough primary tumor resection and lymph node dissection. At the same time, in order to reduce the recurrence, delay the recurrence period and to prolong patient life, radiotherapy and chemical

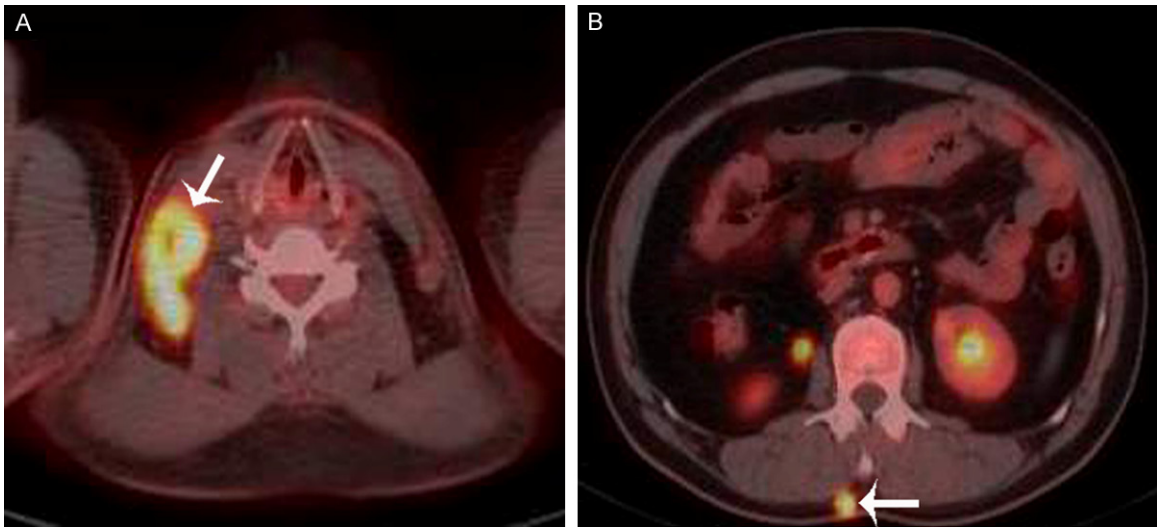

Figure 6. A PET-CT shows the multiple lymph nodes enlargement mass at the right side of the neck root (A). A small mass lesion is seen lying to the back (B).

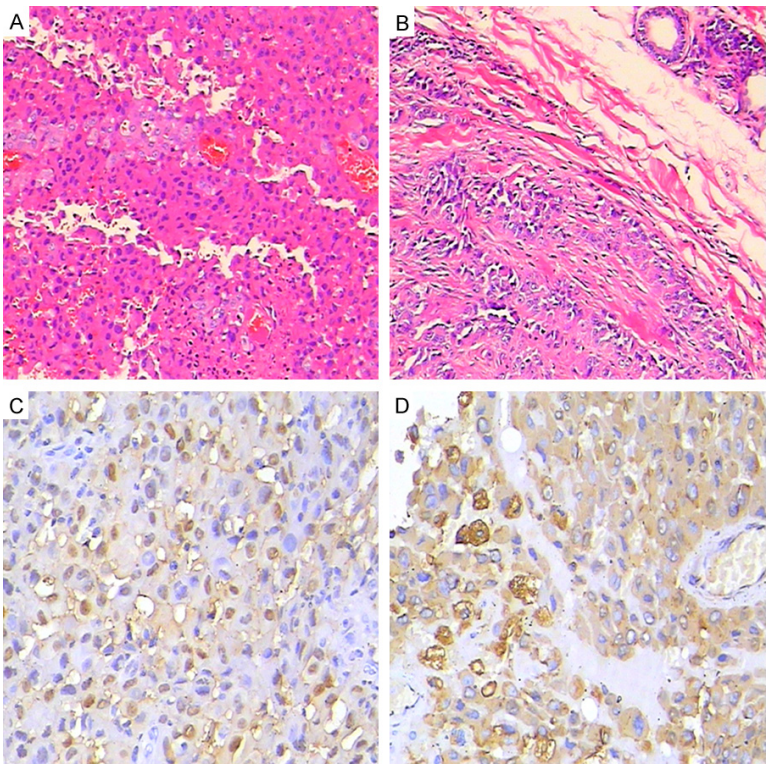

Figure 7. Hematoxylin and eosin staining discloses the lesions infiltrated by a tumor composed of fascicles, and sheets of large oval to polygonal cells with abundant eosinophilic cytoplasm and hyperchromatic crowded in the back (A. HE stain 100×) and cervical lymph nodes (B. HE stain 100×). Malignant cells are positive for S100 and Vim cytoplasmic staining, with pale yellow to brown diffuse distributions (immunostaining, C. S100 200×, D. Vim 200×).

immune therapy should be prescribed for patients after operation of malignant melanoma or for patients without operation indication. Then, we should improve our knowledge in order to reduce misdiagnosis and deliver better and effective treatment to such patients. We believe that this case will increase the awareness of us to the unusual and rare presentation of metastatic melanoma to the intraparotid and cervical lymph nodes and the back.

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Disclosure of conflict of interest

None.

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References

[1] Shah JP, Huvos AG, Strong EW. Mucosal melanomas of the head and neck. Am J Surg 1977; 134: 531-535.

[2] Layfield LJ. Fine-needle aspiration in the diagnosis of head and neck lesions: A review and discussion of problems in differential diagnosis. Diagn Cytopathol 2007; 35: 798-805.

[3] Bron LP, Traynor SJ, McNeil EB, O'Brien CJ. Primary and metastatic cancer of the parotid: Comparison of clinical behavior in 232 cases. Laryngoscope 2003; 113: 1070-1075.

[4] Lussier C, Klijanienko J, Vielh P. Fine-needle aspiration of metastatic nonlymphomatous tumors to the major salivary glands: A clinicopathologic study of 40 cases cytologically diagnosed and histologically correlated. Cancer 2000; 90: 350-356.

[5] Karayianis SL, Francisco GJ, Schumann GB. Clinical utility of head and neck aspiration cytology. Diagn Cytopathol 1988; 4: 187-192.

[6] Wang BY, Lawson W, Robinson RA, Perez-Ordonez B, Brandwein M. Malignant melanomas of the parotid: Comparison of survival for patients with metastases from known vs unknown primary tumor sites. Arch Otolaryngol Head Neck Surg 1999; 125: 635-639.

[7] Barbieri M, Gentile R, Cordone MP, Mora R, Mora F. Primitive malignant melanoma of the parotid gland. ORL J Otorhinolaryngol Relat 2002; 64: 297-299.

[8] Lee SM, Betticher DC, Thatcher N. Melanoma: chemotherapy. Br Med Bull 1995; 51: 609-630.

[9] Barth A, Wanek LA, Morton DL. Prognostic factors in 1, 521 melanoma patients with distant metastases. J Am Coll Surg 1995; 18: 193-201.

[10] El-Safadi S, Estel R, Mayser P, Muenstedt K. Primary malignant melanoma of the urethra: a systematic analysis of the current literature. Arch Gynecol Obstet 2014; 289: 935-943.

[11] Cappello ZJ, Augenstein AC, Potts KL, McMasters KM, Bumpous JM. Sentinel lymph node status is the most important prognostic factor in patients with melanoma of the scalp. Laryngoscope 2013; 123: 1411-1415.

[12] Callender GG, Egger ME, Burton AL, Scoggins CR, Ross MI, Stromberg AJ, Hagendoorn L, Martin RC 2nd, McMasters KM. Prognostic implications of anatomic location of primary cutaneous melanoma of 1 mm or thicker. Am J Surg 2011; 202: 659-664.

[13] Thorn M, Adami HO, Ringborg U, Bergstrom R, Krusemo U. The association between anatomic site and survival in malignant melanoma. An analysis of 12,353 cases from the Swedish Cancer Registry. Eur J Cancer Clin Oncol 1989; 25: 483-491.

[14] Machado J, Ministro P, Araujo R, Cancela E, Castanheira A, Silva A. Primary malignant melanoma of the esophagus: A case report. World J Gastroenterol 2011; 17: 4734-4738.

[15] Efesoy O, Cayan S. Bladder metastasis of malignant melanoma: a case report and review of literature. Med Oncol 2011; 28: S667-S669.

[16] Sundersingh S, Majhi U, Chandrasekar SK, Seshadri RA, Dakshinamurthy SK, Narayanaswamy K. Metastatic Malignant Melanoma of the Small Bowel-Report of Two Cases. J Gastrointest Cancer 2012; 43: 3 32-335.