

Sentinel lymph node biopsy for the staging of anal melanoma: Report of two cases

Yasemin SANLI,* Cuneyt TURKMEN,* Sidika KURUL,** Faruk TAŞ,**
Ayşe MUDUN* and Sema CANTEZ*

*Department of Nuclear Medicine, Istanbul University, Faculty of Medicine, Istanbul, Turkey

**Department of Surgical Oncology, Istanbul University, Institute of Oncology, Faculty of Medicine, Istanbul, Turkey

Primary melanoma of the anal region is a rare pathological entity and its prognosis is generally poor. The aim of this report is to demonstrate the feasibility of the sentinel lymph node (SLN) procedure with combined technique in patients with anal melanoma. We report of two cases with anal melanoma that had wide local excision of the primary lesion and was referred for further evaluation. After diagnostic metastatic work-up, SLN procedure consisted of a combination of preoperative lymphoscintigraphy with technetium-99m nanocolloid injected around the tumor, and intraoperative detection of SLN with gamma probe (combined technique) was performed. In addition, patent blue dye was injected at the periphery of the tumor to facilitate direct identification of the blue-stained lymph node. In the first case, SLN identified both inguinal and iliac lymph node basins, both of which were histologically negative on both frozen and paraffin sections. In the other case, SLN removed from the inguinal lymph node basin showed micrometastasis by paraffin section. In both cases SLN procedure with combined technique was performed sufficiently without significant complications. Consequently, we suggest that SLN procedure with combined technique is also a useful technique in malignant melanomas similar to other anal canal cancers.

Key words: malignant melanoma, anal canal, lymphoscintigraphy, sentinel lymph node biopsy

INTRODUCTION

ANAL TUMORS are rare tumors that represent only 0.1%–4.6% of anorectal malignancies. Moreover, primary anorectal malignant melanoma accounts for only 0.2%–3% of all patients with all malignant melanomas.¹ The mainstay of treatment of the primary lesion is usually surgical with wide local excision or abdominoperineal resection with or without radiation therapy. While there is a consensus to treat clinically involved lymph nodes with therapeutic lymph node dissection, the problem is to diagnose the potentially metastatic inguinal and/or iliac lymph nodes. For this reason, appropriate therapeutic management of these patients remains controversial.²

It is well-known that sentinel lymph node (SLN) procedure with combined technique is the preferred method of nodal staging for cutaneous melanomas and breast carcinoma. In a similar fashion, we thought to perform the same procedure in two patients with anal canal malignant melanoma. This report demonstrates the feasibility of SLN procedure with combined technique for detecting metastatic disease in the regional lymph nodes in patients with anal canal malignant melanoma.

CASE REPORT

Case 1

A 42-year-old woman presented with anal bleeding and a palpable mass at the 8 o'clock position of the anus. Upon biopsy, the lesion was found to be a nodular malignant melanoma with 2 mm of Breslow thickness and ulceration. She underwent wide local excision of the lesion and was left to secondary healing. She was then referred for further evaluation. No distant metastasis was detected with metastatic work-up. Prior to the surgical excision of

Received December 5, 2005, revision accepted July 31, 2006.

For reprint contact: Yasemin Sanli, M.D., Resident in Nuclear Medicine, Istanbul Tıp Fakültesi, Dahiliye Binasi, Nükleer Tıp Anabilim Dalı Sekreterliği, 34390, Şehremini, İstanbul, TURKEY.

E-mail: yaseminsanli75@yahoo.com

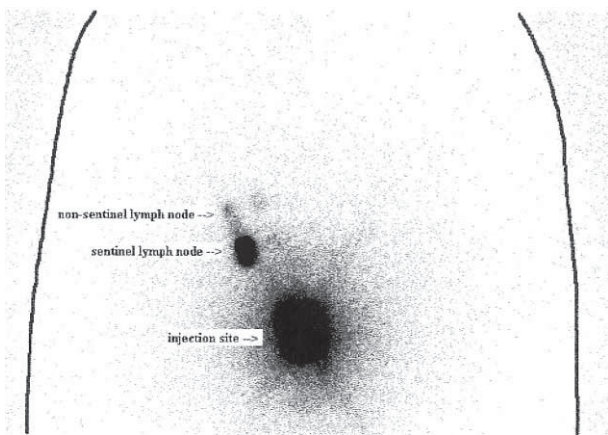


Fig. 1 Preoperative Tc-99m nanocolloid scan of case 1. Scintigraphic image obtained 10 minutes after injection from the anterior pelvis of patient showed sentinel and non-sentinel lymph nodes in the right inguinal basin.

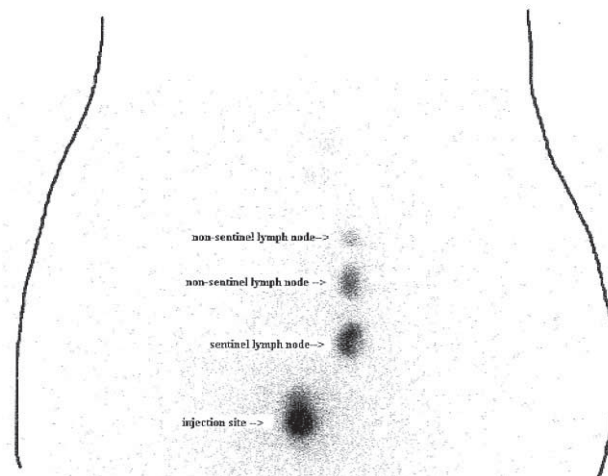


Fig. 2 Preoperative Tc-99m nanocolloid scan of case 2. Scintigraphic image obtained 10 minutes after injection from the anterior pelvis of patient showed sentinel and non-sentinel lymph nodes in the left inguinal basin.

the inguinal lymph nodes, approximately 27.75 MBq (750 μ Ci) Tc-99m nanocolloid (Nanocis, Schering, CIS Bio International; Cedex, France) was injected intradermally from three different areas around the surgical wound at the right side of the anus. After injection, dynamic images were obtained for ten minutes from the anterior pelvis, and the following static images were obtained in the first hour using a gamma camera (Vertex plus ADAC/Philips, Eindhoven, The Netherlands). The sentinel node was defined by early dynamic imaging as the first draining node from the injection site. Lymphoscintigraphy showed Sentinel and non-Sentinel Lymph Nodes in the right inguinal basin (Fig. 1). These nodes were marked on the overlying skin using an indelible ink pen. In the operating room, patent blue dye (Methylene Blau, Vitis Neofarma

GmBh, Germany) was also injected intradermally around the biopsy site to facilitate direct identification of the blue-stained lymph node. Two separate blue-stained and hot SLNs were identified by help of the gamma probe (Navigator-USSC/Tyco Healthcare, USA) and were removed. Frozen and paraffin examination of these two SLNs showed no metastasis. She has no recurrences neither locally or regionally during the follow-up period (6 months).

Case 2

A 62-year-old man presented with anal bleeding and a mass at 4 o'clock position of the anus. Histopathologic examination of the excisional biopsy specimen demonstrated superficial spreading malignant melanoma with 3.4 mm of Breslow thickness and ulceration. A wide local excision was performed by another center and left for secondary healing. No distant metastasis was detected during metastatic work-up. In this case, approximately a total of 27.75 MBq (750 μ Ci) Tc-99m nanocolloid was injected intradermally into the three different quadrants around the excision scar at the left side of the anus. Lymphoscintigraphy showed SLNs in the left inguinal and iliac basin (Fig. 2). Two inguinal blue stained and hot SLNs were identified with a gamma probe and were removed surgically. One of these was positive for metastasis in the paraffin section and a radical inguinal lymph node dissection was planned, but the patient refused to have an operation. Since the patient had Stage III disease, he received 6 course of single agent chemotherapy (DETICENE) with a standard schedule (250 mg/m² day/ to 5 IV. 28 days) and 3 \times 9 MU interferon- α /SC (twice a week). He was followed-up with a clinical examination every three months. After 30 months, he was admitted with the complaint of rectal bleeding and a mass 3 cm in diameter. Incisional biopsy confirmed recurrent malignant melanoma. With the consent of the patient, a delayed abdominopelvic resection was performed. Despite aggressive surgical therapy, he died 6 months after the operation due to systemic dissemination of the disease without involvement of the inguinal lymph nodes.

DISCUSSION

Lymphoscintigraphy is beneficial to determine the anatomic lymphatic drainage site and identify the sentinel lymph nodes. Ideal radiotracer characteristics for lymphoscintigraphy include stable particle size, rapid migration to the SLN, a limited diffusion zone, and predictable reductions of activity in second-tier and third-tier lymph nodes. Most European investigators use ^{99m}Tc-HSA nanocolloid with particles between 4 and about 100 nm (95% of the particles, 80 nm). At present, this radiopharmaceutical offers the best range of particle size, approaching the ideal range, and offers the additional benefits of instant labeling at room temperature and stability *in*

vitro and *in vivo*.³ Radiocolloid injection at the primary melanoma site to determine the lymph node basin has been used to guide surgeons for prophylactic lymph node dissection.^{4,5} In addition, intraoperative gamma probe is used to detect the SLN for surgical excision. These two together are known as SLN procedure with combined technique. After publishing the high success rate of this procedure in melanoma and breast cancer, SLN procedure for nodal staging was also performed in squamous cell carcinoma of the anal canal.^{6,7} The authors in this field suggest this method for guiding a more selective approach to minimize the surgical complications and prevent understaging of pathologically node-positive but clinically node-negative patients. Eventually, these patients may be afforded the opportunity for aggressive treatment such as lymph-node dissection or systemic immunotherapy.^{8,9}

To our knowledge, 3 cases evaluated with intraoperative detection of SLN with gamma probe have been reported. In the first case, the authors performed intraoperative lymphatic mapping with both isosulfan blue and filtered technetium sulfur colloid to a 39-yr-old woman with perianal primary melanoma. With ipsilateral inguinal lymphadenectomy, they identified 5 nodes, which were hot and blue with the guidance of the lymphoscintigram. And one node was found to have metastasis.¹⁰ The other two cases from the same institution were 56 and 52-yr-old women with anal melanoma, in whom no tumor metastasis was demonstrated in the frozen and paraffin sections of the surgically removed SLNs in guidance of the same combined technique with us. No significant complications were encountered in these 3 cases.¹¹ Similar to the former case reports, we were also able to detect the sentinel lymph nodes of the anal canal melanoma in two patients and guide the surgeons to remove the sentinel nodes without significant complications with this technique. In one of these patients histopathologic examination of the SLN's revealed malignant melanoma metastasis to the inguinal lymph nodes. Both of these patients were discharged from the hospital on the day of their surgery without significant complications.

Although there was no difference in the number of hot nodes identified by lymphoscintigraphy, and that hot nodes identified by gamma probe in our cases, we believe that lymphoscintigraphy is an integral part of any procedure of sentinel lymph node detection. It is particularly helpful when visualizing more than a single sentinel lymph node to distinguish true additional sentinel nodes on different lymphatic pathways from second- and third-tier nodes. In some cases if the duration between the lymphoscintigraphy and surgery is prolonged, there may be additional lymph nodes found by gamma probe. But in our patients this did not happen because the patients were operated on immediately after lymphoscintigraphy. Moreover, by providing accurate topographic coordinates

preoperatively, lymphoscintigraphy enables the surgeon to focus attention on the correct hot spot, thus shortening the surgical procedure and increasing the overall accuracy of sentinel node detection.

We learned from these two cases that, lymphoscintigraphy followed by gamma-probe guided inguinal sentinel lymph node biopsy (combined technique) is feasible and may be useful for staging patients with anal malignant melanoma like other cancers of the anal canal. However, further studies with larger groups of patients are needed to determine the overall impact of this technique of staging modality in the management of patients with anal malignant melanoma.

REFERENCES

1. Longo WE, Vernava AM 3rd, Wade TP, Coplin MA, Virgo KS, Johnson FE. Rare anal canal cancers in the U.S. veteran: patterns of disease and results of treatment. *Am Surg* 1995; 61: 495–500.
2. Bullard KM, Tuttle TM, Rothenberger DA, Madoff RD, Baxter NN, Finne CO, et al. Surgical therapy for anorectal melanoma. *J Am Coll Surg* 2003; 196: 206–211.
3. Mariani G, Moresco L, Viale G, Villa G, Bagnasco M, Canavese G, et al. Radioguided sentinel lymph node biopsy in malignant cutaneous melanoma. *J Nucl Med* 2002; 43 (6): 811–827.
4. Fee HJ, Robinson DS, Sample WF, Graham LS, Holmes EC, Morton DL. The determination of lymph shed by colloidal gold scanning in patients with malignant melanoma: a preliminary study. *Surgery* 1978; 84: 626–632.
5. Meyer CM, Lecklitner ML, Logic JR, Balch CE, Bessey PQ, Tauxe WN. Technetium-99m sulfur-colloid cutaneous lymphoscintigraphy in the management of truncal melanoma. *Radiology* 1979; 131: 205–209.
6. Damin DC, Rosito MA, Gus P, Spiro BL, Amaral BB, Meurer L, et al. Sentinel lymph node procedure in patients with epidermoid carcinoma of the anal canal: early experience. *Dis Colon Rectum* 2003; 46: 1032–1037.
7. Perera D, Pathma-Nathan N, Rabbitt P, Hewett P, Rieger N. Sentinel node biopsy for squamous-cell carcinoma of the anus and anal margin. *Dis Colon Rectum* 2003; 46: 1027–1029.
8. Droesch JT, Flum DR, Mann GN. Wide local excision or abdominoperineal resection as the initial treatment for anorectal melanoma? *Am J Surg* 2005; 189: 446–449.
9. Ulmer C, Bembek A, Gretsche S, Markwardt J, Koswig S, Schneider U, et al. Refined staging by sentinel lymph node biopsy to individualize therapy in anal cancer. *Ann Surg Oncol* 2004; 11 (3 Suppl): 259S–262S.
10. Tien HY, McMasters KM, Edwards MJ, Chao C. Sentinel lymph node metastasis in anal melanoma: a case report. *Int J Gastrointest Cancer* 2002; 32: 53–56.
11. Olsha O, Mintz A, Gimon Z, Gold Deutch R, Rabin I, Halevy A, et al. Anal melanoma in the era of sentinel lymph node mapping: a diagnostic and therapeutic challenge. *Tech Coloproctol* 2005; 9: 60–62.