Available online at www.sciencedirect.com

SciVerse ScienceDirect

British Journal of Oral and Maxillofacial Surgery 52 (2014) 340–343

BRITISH Journal of Oral and Maxillofacial Surgery

www.bjoms.com

The metastatic potential of head and neck cutaneous malignant melanoma: is sentinel node biopsy useful?

B.G. Main [a,b,*], M.J. Coyle [a], A. Godden [a,c], D.R. Godden [a]

[a] *Department of Oral and Maxillofacial Surgery, Gloucestershire Royal Hospitals NHS Trust, Gloucester, UK*
[b] *Centre for Surgical Research, University of Bristol, Bristol, UK*
[c] *University of Aberdeen Medical School, Aberdeen, UK*

Accepted 13 January 2014
Available online 8 February 2014

Abstract

Results from a large multicentre trial suggest that sentinel lymph node biopsy examination may benefit disease-free survival in patients with cutaneous malignant melanoma of intermediate thickness, but this is controversial. We recorded the outcomes of patients with these lesions in the head and neck with specific reference to regional lymph node metastases, to find out whether routine sentinel lymph node biopsy examination would have been beneficial. We reviewed pathology databases, multidisciplinary outcomes, and notes for all patients managed by a regional melanoma service between 2004 and 2009, and recorded key characteristics of the tumours. Details on patients with malignant melanoma of intermediate thickness (1.2–3.5 mm) were further analysed for the development of nodal metastases in the neck over a 3-year postoperative period. We compared our data with the rate of predicted nodal metastases generated from the trial. Of 132 patients with malignant melanoma of the head and neck, 33 (25%) had lesions of intermediate thickness, and nodal metastases developed in only one. The remaining 32 remained free of neck disease during the study period. Although trial data predicted that 16% ($n=5$ in this sample) would show signs of metastasis and require neck dissection, on the basis of our data, practice in our unit will not change. Sentinel node biopsy examination for melanoma remains controversial because the natural history of metastatic spread of disease is not fully understood.

Keywords: Malignant melanoma; Sentinel node biopsy

Introduction

Sentinel node biopsy examination continues to be controversial in the treatment of malignant melanoma. This is despite the results of the large Multicenter Selective Lymphadenectomy Trial (MSLT-1), which showed that it gave no overall advantage for survival, although patients who were found to have nodal disease at biopsy examination did better in terms of disease-free survival than those found to have disease at follow-up.[1]

Sentinel node biopsy examination is based on the assumption that microscopic malignant melanoma found in a lymph node is clinically and functionally relevant, so early removal of such nodes must be beneficial in terms of survival and local control. It also provides prognostic information. However, these assumptions have been challenged, and Spanknebel et al. showed that immunologically-detected micrometastases have the same prognostic importance as negative nodes.[2] These micrometastases may be functionally false positive, and many argue that continual immune surveillance by the host prevents the development of frank nodal disease.

Despite the uncertainty about its effectiveness, the procedure has become standard practice in the United States and, although not recommended by the National Institute for Health and Care Excellence, is now offered by a growing number of units in the UK.[3] This is partly because drug

* Corresponding author at: Centre for Surgical Research, School of Social and Community Medicine, University of Bristol, Canynge Hall, 39 Whatley Road, Clifton, Bristol BS8 2PS, United Kingdom. Tel.: +44 0117 928 7397.
E-mail addresses: b.g.main@bristol.ac.uk, barrymain@doctors.org.uk (B.G. Main).

0266-4356/$ – see front matter
http://dx.doi.org/10.1016/j.bjoms.2014.01.008

companies specify it as a prerequisite for entry into clinical trials. This has an obvious impact on workload and a potential impact on morbidity.

We aimed to ascertain the metastatic potential in a group of patients with malignant melanoma of the head and neck who would have qualified for sentinel node biopsy examination as part of the MSLT-1 trial: those with malignant melanoma of intermediate thickness (1.2–3.5 mm thick) who did not have the procedure.

Material and methods

We reviewed pathology databases, outcome data from the multidisciplinary team, and clinical notes of all patients diagnosed with an intermediate thickness cutaneous malignant melanoma of the head and neck between January 2005 and December 2009. Intermediate thickness was taken to be Breslow thickness of between 1.2 and 3.5 mm because this is how it was defined in the MSLT study.[1] We reviewed the clinical notes until the date of death or to the end of December 2012, whichever was sooner. Therefore, for all living patients, this was at least 3 years of follow-up.

Data collected included patient characteristics, tumour data (site, histological findings, Breslow thickness, Clark level, maximum diameter, presence or absence of ulceration, and mitotic rate), treatment, date and site of recurrent or metastatic disease, and date of death or status at last documented follow-up (alive with or without disease). From this we calculated the rate of development of cervical node metastasis and compared it with the number of patients who would have been eligible for sentinel node biopsy examination had they been part of the trial.

Results

Between January 2005 and December 2009, 132 patients were diagnosed with cutaneous malignant melanoma of the head and neck. A total of 76 (58%) were male and 56 (42%) were female. Mean age at diagnosis was 74 years (range 18–99).

The most commonly affected sites were the cheek (25%), scalp (19%), and neck (16%). A total of 71 (54%) tumours were thin (Breslow thickness less than 1.2 mm), 33 (25%) were of intermediate thickness (1.2–3.5 mm), and the remaining 28 (21%) were thick (more than 3.5 mm).

Histologically, most were lentigo maligna melanoma (36%), slightly fewer were superficial spreading malignant melanoma (33%), and 18% were nodular. The remaining tumours were of various histological types. Twenty percent of all tumours were ulcerated.

During a mean follow-up period of 4.4 years (range 3 months–5 years), one patient (3%) with a melanoma of intermediate thickness developed cervical lymph node metastases that required radical neck dissection. This patient later died of disease. None of the remaining 32 patients with a primary tumour of intermediate thickness developed neck disease or died of distant metastatic disease during the study period.

The results are summarised in Table 1.

Discussion

The 5-year interim results from a large, multicentre trial in 2006 suggested that elective lymph node dissection conferred benefit in terms of disease-free, but not overall, survival, in patients with an intermediate thickness malignant melanoma who had metastatic disease confirmed by sentinel node biopsy examination. This led to sentinel node biopsy examination being adopted as standard practice in the US. In the UK, the National Institute for Health and Care Excellence does not recommend it as standard practice, but it is a requirement for entry into most clinical trials of adjuvant therapies.[4] There is no doubt that it provides useful staging information[5] but its promotion as a treatment that affects outcome is controversial, and it was this controversy that prompted our study. We also aimed to estimate the potential economic burden associated with the procedure.

Our multidisciplinary melanoma network serves a population of over 600 000 people. During a mean follow-up of 4.4 years (range 3 months–5 years), only one of our 33 patients developed cervical lymph node metastases, and none died of melanoma-related disease. Had sentinel node biopsy examination been routine practice in our unit, all 33 patients would have had the procedure. As the MSLT-1 trial and other studies estimate that nodal relapse will occur in about 16% of patients with lesions of intermediate thickness,[1,6] our group would have been expected to yield 5 positive results, and 4 patients would potentially have had formal neck dissection which would have had no therapeutic benefit.

While our sample size is small and the follow-up period is relatively short, our data help to highlight some of the ongoing controversy that surrounds the technique. First, the mechanism for the development of nodal metastases is not fully understood. Several authors have suggested that micrometastasis in a lymph node does not necessarily lead to the later development of frank nodal disease.[7] This may explain why only one of our patients developed clinically apparent nodal disease and why a biopsy examination is not beneficial in terms of overall survival. Furthermore, there are estimates that a false-positive rate of up to 24% is associated with sentinel node biopsy examination, which means that around one quarter of nodes found to be affected would not normally develop into bulky nodal disease.[8] It is hypothesised that many of the micrometastases that would be detected are cleared by the immune system.[7] Recently, the potential for screening to result in over-treatment has been highlighted, and as Esserman et al. pointed out, the ideal screening programme should focus on the detection of disease that will ultimately cause harm.[9] It is, at present, not clear that this is the case for micrometastatic melanomatous deposits in lymph