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HEAD AND NECK MYIASIS, CUTANEOUS MALIGNANCY, AND INFECTION: A CASE SERIES AND REVIEW OF THE LITERATURE

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Abstract—Background: There is a paucity of literature on wound myiasis of the head and neck originating in the United States. To our knowledge, only three reports during the past 20 years exist in the literature. Even less common is a case of recurrent myiasis, with only one report published from India during the 1970s. There is often a preconceived notion that larvae are noninvasive and “only eat dead tissue.” This mentality must be corrected; invasive larvae exist, there are unique myiasis-related infections, and serious complications can occur. We review the literature and describe recent cases of head and neck myiasis treated at our institution in upstate New York. **Case Reports:** Four cases, all initially presenting to the emergency department, were identified. Each case was superimposed on cutaneous malignancy and all patients presented with leukocytosis and positive blood or wound cultures. In the case of the recurrent myiasis, initial treatment was external beam radiation therapy for the malignancy, which had the added benefit of eradicating the larvae. Treatment for the other cases was limited to antibiotics and supportive care for medical comorbidities. **Why Should an Emergency Physician Be Aware of This?:** Serious complications can develop from head and neck myiasis and, in our experience, an underlying malignancy should be suspected. Proper management is critical and should include, at a minimum, empiric antibiotics, tetanus prophylaxis, biopsy of the surrounding tissue, and reporting to the appropriate health agency. Additional management can include bedside debridement, pharmacologic antiparasitics, and treatment of the underlying disorder. © 2014 Elsevier Inc.

Keywords—debridement; myiasis; parasitic infestation

INTRODUCTION

Myiasis is an ectoparasitic infestation of tissue by the dipterous larvae of higher flies; its name is derived from the Greek word for fly, “myia” (1). In Hindu mythology, it is considered “God’s punishment of sinners” (2). Overall, this condition is rare in humans and is usually seen in conjunction with tropical and subtropical location, poor hygiene, suboptimal housing conditions, and overall debilitated state (1,3–5). Myiasis can be caused by obligate, facultative, or accidental larval parasites. Obligate parasites must live and feed on hosts. Facultative parasites preferentially feed on decaying matter and tend not to invade healthy tissue. Accidental parasites are eggs or larvae that are inhaled or swallowed inadvertently. Clinical categories of infestation include furuncular, wound, intestinal, and cavitary. In the head and neck, obligate and facultative parasites are the most common and usually result in wound infestation. Of note, there are species of larvae used for therapeutic purposes, specifically the *Lucilia* species. However, they are also documented to cause pathologic myiasis in humans, with some strains being locally invasive (6,7).

Myiasis has been reported in a variety of body subsites, including the head and neck, the oral cavity, genitals, and the brain. Often, this is after a traumatic or surgical wound or site of pre-existing lesion (1,2,8–12). Factors that predispose to myiasis include increased age (older than 60 years); low socioeconomic status; and

medical comorbidities, such as vascular or respiratory compromise (1,5,13,14). However, there is a paucity of literature on myiasis originating in the United States. We review the literature and describe four recent cases of head and neck myiasis treated at our institution.

CASE REPORTS

After Institutional Review Board approval was obtained, a retrospective chart review was conducted for all patients admitted or seen in the emergency department (ED) for head and neck myiasis (International Classification of Diseases, 9th revision and 10th revision codes 134.0 and B87, respectively). Data, including medical history, presentation of myiasis, imaging studies, treatments, laboratory studies, and outcomes, were recorded.

From January 1995 to September 2012, four cases of head and neck myiasis were identified. Importantly, these cases were acquired in the United States, as none of these patient had a history of travel outside of upstate New York. All cases were associated with an underlying cutaneous malignancy.

Case 1

A 73-year-old man presented with squamous cell carcinoma of the left ear. There was an 8 × 8 cm lesion surrounding the external auditory canal with live maggots visualized (Figure 1). Moderate leukocytosis was present with a white blood cell (WBC) count of $15.4 \times 10^3/\mu\text{L}$, and 12% bandemia, and 85% neutrophils. Blood culture

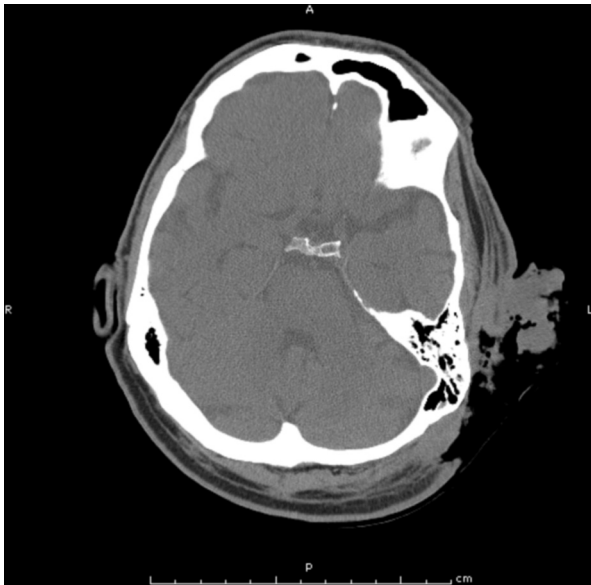


Figure 1. Computed tomography scan of a 73-year-old male with an irregular lesion arising from external auditory canal consistent with visualized cutaneous lesion and live maggots.

revealed coagulase-negative staphylococcus. The patient was treated with i.v. antibiotics (Zosyn) and discharged after 5 days with resolution of myiasis.

Case 2

A 58-year-old man presented with metastatic melanoma, along with end-stage renal disease and respiratory failure. There was a neck metastasis with live maggots visualized in the wound. This patient exhibited the most dramatic case of leukocytosis, with a WBC count of $37.2 \times 10^3/\mu\text{L}$, and 32% bandemia and 62% neutrophils. The blood culture was negative and the wound culture revealed methicillin-resistant *Staphylococcus aureus* (MRSA). Treatment included i.v. antibiotics (Kefzol, Zosyn, and clindamycin). The patient remained in the hospital for 10 days before passing away secondary to underlying medical conditions.

Case 3

An 85-year-old female presented to our institution with a large, approximately 10 × 5 cm, fungating nasal and facial lesion. Multiple live maggots were visualized crawling on the surface of the lesion as well as within. Biopsy was taken at bedside and revealed basaloid squamous cell carcinoma. Computed tomography scan was performed and redemonstrated the large, fungating mass seen on physical examination with irregular soft tissue densities representing both tumor and larvae (Figure 2). Baseline WBC was $14.1 \times 10^3/\mu\text{L}$ and blood



Figure 2. Computed tomography scan of an 85-year-old female with large, irregular heterogeneously enhancing destructive mass consistent with squamous cell carcinoma and superimposed myiasis.

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