The Head-Tilt Maneuver

A Clinical Aid in Recognizing Head and Neck Angiosarcomas

Maryam M. Asgari, MD, MPH; Clay J. Cockerell, MD; Sarah Weitzul, MD

Background: Cutaneous angiosarcoma is a rare, life-threatening tumor that is often initially misdiagnosed. This delay in diagnosis can affect tumor growth, metastatic potential, and prognosis.

Observations: We describe the “head-tilt maneuver,” which highlights the vascular nature of these lesions and can be of potential benefit in early recognition and better appreciation of the clinical extent of this tumor.

Conclusion: Early recognition and aggressive management of these tumors can afford the best opportunity for cure.

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Cutaneous angiosarcoma is a rare, aggressive endothelial sarcoma that arises most commonly on the head and neck of elderly men. Cutaneous angiosarcomas can arise on the extremities in patients with chronic lymphedema (Stewart-Treves syndrome) or on areas treated with irradiation as well as in preexisting vascular malformations. Little is known about the risk factors that lead to its development on the head and neck, although there is a strong predilection for elderly white men. Cumulative sun exposure does not seem to be a risk factor. The tumor is composed of a clonal proliferation of malignantly transformed cells that express markers for both lymphatic and vascular endothelium. Despite multimodal treatment, it has an extremely poor prognosis with a reported 5-year survival of less than 35%. Prognosis is closely linked to the size of the tumor and the depth of invasion, highlighting the importance of early recognition.

Cutaneous angiosarcomas can often mimic inflammatory conditions such as rosacea, erysipelas, or cellulitis. They can also be misdiagnosed as an arthropod bite or a bruise. The variety of ways in which cutaneous angiosarcomas manifest often delays diagnosis.

We present a sign, to our knowledge not previously described in the literature, that can aid in the diagnosis of these life-threatening tumors. The tumor’s vascular etiology can be accentuated by performing what we call the head-tilt maneuver. In this maneuver, the patient is asked to place his or her head below the level of the heart for 5 to 10 seconds. If the area of involvement becomes markedly more violaceous and engorged, a vascular neoplasm should be suspected.

Report of a Case

We describe a previously healthy 46-year-old white man who presented to our clinic with a 2-month history of a progressively enlarging erythematous plaque on his left cheek. He noted that the erythema appeared to intensify with exertion or a rise in ambient temperature, as well as when he lowered his head below the level of his heart (head-tilt maneuver). The plaque was asymptomatic, although he had noted progressive induration of the area near his jaw line over the preceding 2 weeks.

Physical examination revealed an erythematous plaque on his left medial cheek with extension to the mandible (Figure 1 and Figure 2). The inferior portion of the plaque appeared edematous. When the patient lowered his head between his knees for 5 seconds, the involved areas became prominently violaceous and throbbed painfully. Violaceous patches were also noted in the glabella and right medial cheek (Figure 3) but were not visible when the patient was sitting upright.

Author Affiliations:
Department of Dermatology, University of Texas Southwestern Medical Center, Dallas (Drs Asgari, Cockerell, and Weitzul); and Division of Research, Kaiser Permanente Northern California, Oakland (Dr Asgari).
Histologic examination of the skin from the left cheek, right cheek, and glabella showed prominent dermal vascular proliferations of thin-walled vessels with irregular channels lined by atypical plump endothelial cells (Figure 4A). Atypical endothelial cells were also noted to float freely within the vascular spaces (Figure 4A, inset). CD31 staining further highlighted the abnormal endothelial channels (Figure 4B).

Owing to the extensive involvement of both cheeks and the glabella, surgery was excluded as a treatment option. The patient was seen by a hematologist-oncologist who recommended chemotherapy and radiation. The patient underwent 12 weeks of chemotherapy with paclitaxel. Toward the end of his chemotherapy course, the erythema on his glabella and right cheek resolved after the head-tilt maneuver, and the erythema on his left cheek was markedly improved. On completion of chemotherapy, the patient received local irradiation therapy and was doing well 6 months after his date of diagnosis.

**COMMENT**

Cutaneous angiosarcoma is a rare tumor with a poor prognosis and a high potential for metastasis. Prognosis is tightly linked to tumor size and depth of invasion, both of which can be decreased by early detection.6 We report this case to offer the head-tilt maneuver as a quick, easy, and noninvasive clinical aid that emphasizes the vascular etiology of these tumors and that can help facili-

![Figure 1. Erythematous plaque on the left cheek at baseline.](image1)

![Figure 2. Close-up view of the erythematous plaque of left cheek.](image2)

![Figure 3. Violaceous plaque on the cheek after head-tilt maneuver for 10 seconds.](image3)

![Figure 4. Histologic examination of the skin. A, Proliferation of thin-walled vessels in the dermis (hematoxylin-eosin, original magnification ×2); inset, close-up of atypical vascular channels dissecting collagen bundles (hematoxylin-eosin, original magnification ×10); B, CD31 staining highlights endothelial origin of tumor cells (original magnification ×20).](image4)
tate early recognition. This maneuver may also aid in delineating the borders of the tumor as well as highlighting potential skip areas prior to surgical resection. This was particularly valuable in this patient because the contralateral cheek and glabellar involvement, which was not detectable without the head-tilt maneuver, resulted in the exclusion of surgery as a treatment option. In our patient, the violaceous color of the tumor decreased in intensity after commencing chemotherapy, which suggests that the head-tilt maneuver may be useful as a clinical aid in assessing tumor responsiveness to therapy.

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Correspondence: Maryam M. Asgari, MD, MPH, Kaiser Permanente, Division of Research, 2000 Broadway, Oakland, CA 94612 (maryam.m.asgari@kp.org).
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