

# Metastatic Gastric Adenocarcinoma Presenting as an Enlarging Plaque on the Scalp

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*We present a case report of metastatic gastric adenocarcinoma in which the cutaneous metastases were the first sign of disease recurrence. A 73-year-old man presented with painless red plaques on his scalp and forehead. He was diagnosed with gastric carcinoma with metastases to perigastric lymph nodes 3½ years earlier. Histopathology results revealed signet-ring cells consistent with gastric adenocarcinoma. The patient failed to respond to treatment with intralesional interleukin 2, previously reported to be effective, and expired 7 months later.*

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## Case Report

A 73-year-old white man presented with a 4-month history of painless enlarging red plaques on his scalp and upper forehead. Prior treatment included midpotency topical corticosteroids for 2 months without improvement. The patient denied taking any other new prescriptions or over-the-counter medications. His medical history was significant for gastric carcinoma with metastases to 2 perigastric lymph nodes that were resected 3½ years earlier. A review of systems revealed no history of fever, chills, weight loss, or fatigue.

The results of a physical examination were remarkable for erythematous plaques on his upper forehead and an indurated erythematous plaque encompassing approximately two thirds of his scalp (Figure 1). Laboratory findings, including a

complete blood count and complete metabolic panel, were within reference range.

A 4-mm punch biopsy was performed from a frontal scalp specimen, revealing a diffuse cellular infiltrate composed of signet-ring cells with hyperchromatic and pleomorphic nuclei within the superficial and deep dermis (Figure 2). These findings were similar to the histology of the gastric tumor excised previously. A cytokeratin AE1/AE3 stain highlighted the signet-ring cell infiltrate, confirming the diagnosis of cutaneous metastatic gastric adenocarcinoma (Figure 3).

The results of a computed tomography scan of the chest, abdomen, and pelvis were negative for metastatic disease. Endoscopy showed no recurrence of the gastric carcinoma. Further treatment, including systemic chemotherapy, was discussed with the patient. He elected to proceed with intralesional injections of 40,000 IU of interleukin 2 (IL-2) into 5 separate sites in the scalp plaque for a total of 200,000 IU/d for 10 days. On completion of the IL-2 therapy, the patient noted only mild improvement in the morphology of his cutaneous metastases. The results of a repeat skin biopsy demonstrated persistence of the disease. He subsequently began treatment with localized radiation therapy to the scalp, which decreased the size of the indurated plaques. Four months later, the patient noted early satiety and fatigue. The results of a repeat computed tomography scan of the abdomen revealed recurrent disease near the original excision site in the stomach. Despite surgical debulking of the recurrence, the patient expired 3 months later.

## Comment

Cutaneous metastasis has been reported in 0.5% to 9% of patients with internal malignancy, occurring at any age but most frequently in the sixth and seventh decades of life.<sup>1,2</sup> Underlying internal malignancies vary based on gender. In men, the most

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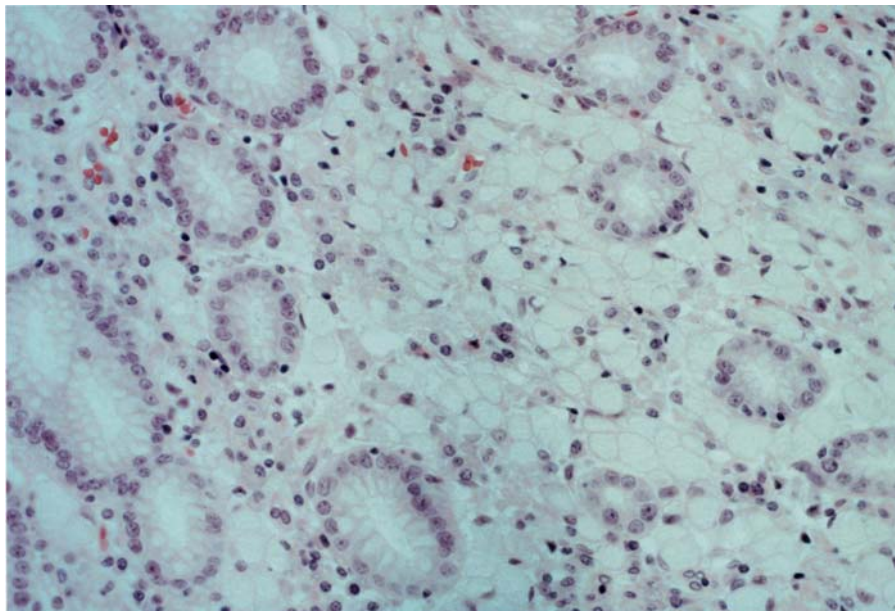
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The authors report no conflict of interest.

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**Figure 1.** Enlarging erythematous plaque on the upper forehead.

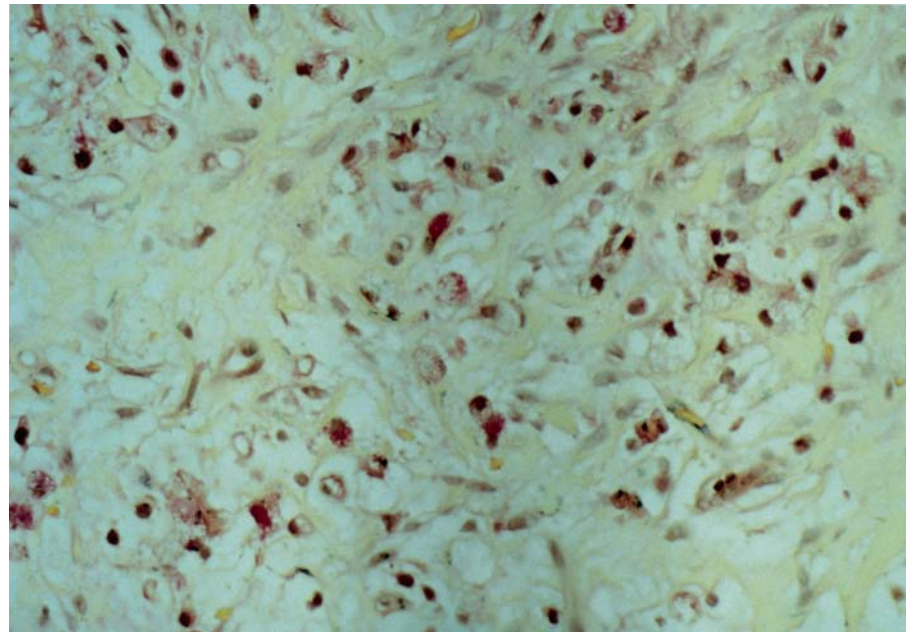


**Figure 2.** Diffuse infiltrate of signet-ring cells with hyperchromatic and pleomorphic nuclei within the superficial and deep dermis (H&E, original magnification  $\times 20$ ).

common internal malignancies leading to cutaneous metastases are lung cancer, cancer of the large intestine, and melanoma. In women, breast cancer, colon cancer, and melanoma are the most frequent malignancies leading to cutaneous metastases.<sup>3</sup> Gastric carcinoma is only rarely reported as a cause of cutaneous metastases. When gastric carcinoma metastasizes, the most common sites are the liver, peritoneal cavity, and regional lymph nodes.<sup>4</sup> In a review of 4806 patients with gastric carcinoma, only 15 developed cutaneous metastases.<sup>5</sup> Gastric cutaneous metastases usually present as nonspecific

nodules on the abdominal wall. This phenomenon was initially reported by the surgical assistant to Dr. W.J. Mayo and bears her name—the Sister Mary Joseph nodule.<sup>6</sup> Other unusual sites of gastric cutaneous metastases include the forearm,<sup>4</sup> eyebrow,<sup>7</sup> and finger.<sup>8</sup>

In our patient, the pathologic findings from the skin biopsy demonstrated signet-ring cells, confirming our diagnosis. Signet-ring cells are commonly observed in mucin-producing adenocarcinomas, such as gastric carcinoma, and less commonly in breast cancer and lung adenocarcinoma.<sup>5,9</sup>



**Figure 3.** Hyperchromatic and pleomorphic nuclei within the dermis (cytokeratin AE1/AE3 stain, original magnification  $\times 40$ ).

When cutaneous metastases are found, imaging studies should be performed to evaluate whether visceral metastases may be present. Patients with visceral metastases may qualify for systemic or localized chemotherapy. Intralesional IL-2 therapy has many immunomodulatory effects, including the stimulation of cytotoxic T cells and natural killer cells, and is approved by the US Food and Drug Administration for the treatment of metastatic renal cell carcinoma, myeloid leukemia, and metastatic melanoma. After weighing the risks and benefits of chemotherapy versus intralesional IL-2, our patient chose a trial of intralesional IL-2.

In a case report by Hamamoto et al,<sup>10</sup> 200,000 IU of intralesional IL-2 was administered over 9 days to an intramammary metastasis in a Japanese patient with metastatic gastric adenocarcinoma. Ten days after the onset of therapy, the intramammary metastasis was almost completely eliminated and revealed no histologic evidence of tumor cells. Although the patient eventually succumbed to his disease, initial therapy was effective.<sup>10</sup> Thus, further studies should be performed investigating the use of intralesional and systemic IL-2, as well as other cytokines, in treating metastatic gastric adenocarcinoma.

In conclusion, our patient's cutaneous metastasis occurred in an unusual location and was the first sign of disease recurrence. It is important for clinicians to maintain a high index of suspicion when examining new lesions in patients with a history of underlying internal malignancy.

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