

Alopecia, Ovarian Mass and Abdominal Skin Metastasis as Initial Clinical Manifestations of Gastric Cancer

Akiko Suzuki
Kouji Arai²⁾

Tomotaka Sato
Yuya Murata³⁾

Ryohei Kishino¹⁾
Arafumi Maeshima³⁾

Hidetsugu Komatsu¹⁾
Shigeru Kuramochi³⁾

IRYO Vol. 65 No. 6 (337–340) 2011

Abstract

Skin changes associated with internal malignancy have been referred to as dermadromes. We report a rare case of a paraneoplastic dermatosis manifesting as an itchy alopecia associated with gastric carcinoma with abdominal skin and ovarian metastases as the initial presenting features of the visceral cancer. We describe the diagnostic sequence of a patient with dermadromes prior to detection of the gastric cancer.

Key Words : alopecia, skin metastasis, gastric cancer, dermadrome, Krukenberg tumor

Introduction

Cutaneous signs of gastric cancer include acanthosis nigricans, the sign of Leser-Trélat, prurigo, erythroderma and alopecia neoplastica. To the best of our knowledge, alopecia involving the whole scalp as a dermadrome of gastric cancer has not been reported. Here, we describe a case of gastric cancer initially presenting with cutaneous metastasis on the lower abdominal wall.

Case report

In February 2009, a 57-year-old woman was referred to the Department of Obstetrics and Gynecology of Tokyo Medical Center with a suspected ovarian tumor associated with abnormal vaginal bleeding, anemia and presence of an abnormal tumor marker. She had reported itchy eruption on the body and scalp, abdominal swelling, and slight leg edema in April 2008. From October 2008, she gradually be-

gan losing her scalp hair and had almost complete loss within a month. In November 2008, she was sent to the Department of Obstetrics and Gynecology of a general hospital because of her history of myoma uteri, abnormal vaginal bleeding and anemia. She also referred to the Department of Dermatology of the same hospital and was treated with a topical steroid and oral fexofenadine. Approximately 2 months later, she had bilateral leg edema and taste disturbance. Her dermatologist suspected a dermadrome related to a gynecological malignancy or scleroderma (as suggested by the pigmentation and depigmentation on the trunk and limbs as well as the high Anti-nuclear antibody titer) and the presence of abnormal tumor markers including CA 125 and CEA had been detected. The patient was subsequently referred to the Department of Obstetrics and Gynecology at Tokyo Medical Center, as well as the Department of Dermatology for examination and treatment of her alopecia and eruptions on the body.

Physical examination revealed diffuse alopecia with pig-

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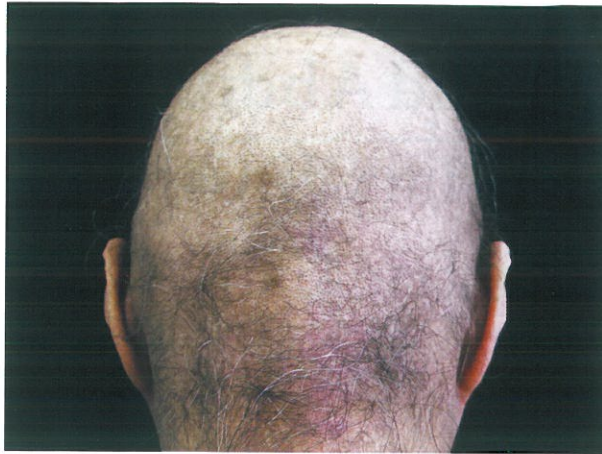


Figure 1 Diffuse alopecia on the scalp

mentation and depigmentation of the scalp (Figs.1). The patient also had a diffuse pigmentation on the trunk and extremities with swelling of the lower abdomen(Figs.2 A-D). She had a notable deep voice, nail dystrophy and lymphedema of the upper and lower limbs. Tumor markers including CA 125(148 U/ml, normal<36 U/ml)and CEA(11.3 ng/mol, normal<5 ng/mol)were elevated. Circulating levels of total testosterone(1.17 $\mu\text{g/l}$, normal<0.69 $\mu\text{g/l}$)were ele-

vated. From the clinical features, we suspected a dermadrome and took skin biopsies from the scalp and lower abdomen. Histopathology of the biopsy taken from the abdomen(Figs.3 A, B) showed signet-ring cell carcinoma in the lymph vessel of the subcutis. The signet-ring cells exhibited positive PAS/Alcian-blue staining. The histological diagnosis was skin metastasis of a signet-ring cell carcinoma, probably of gastric origin. The histopathology of the scalp biopsy showed inflammatory change with fibrosis and no metastatic cells. The patient was referred to the Department of Gastroenterology to locate the primary tumor using gastroscopy and computed tomography(CT). Gastroscopy revealed gastric ulcers and a biopsy of the gastric ulcer revealed a signet-ring cell carcinoma(Figs.4 A, B). CT showed tumor involvement of the lower abdomen as well as bilateral ovarian tumors, uterine myoma, multiple lung metastases, ascites, L 3 spinal metastasis and a neoplastic thrombus in the left internal jugular vein(Figs.5). The patient was diagnosed with stage IV gastric carcinoma. In addition, a bone scan revealed left arm edema and bone metastases in T 6, L 3 and sacral vertebra. We thought that diffuse pigmentation on the trunk and extremities with swelling of the lower abdomen and diffuse scalp alopecia were dermadromes. The tumor was considered inoperable and she re-

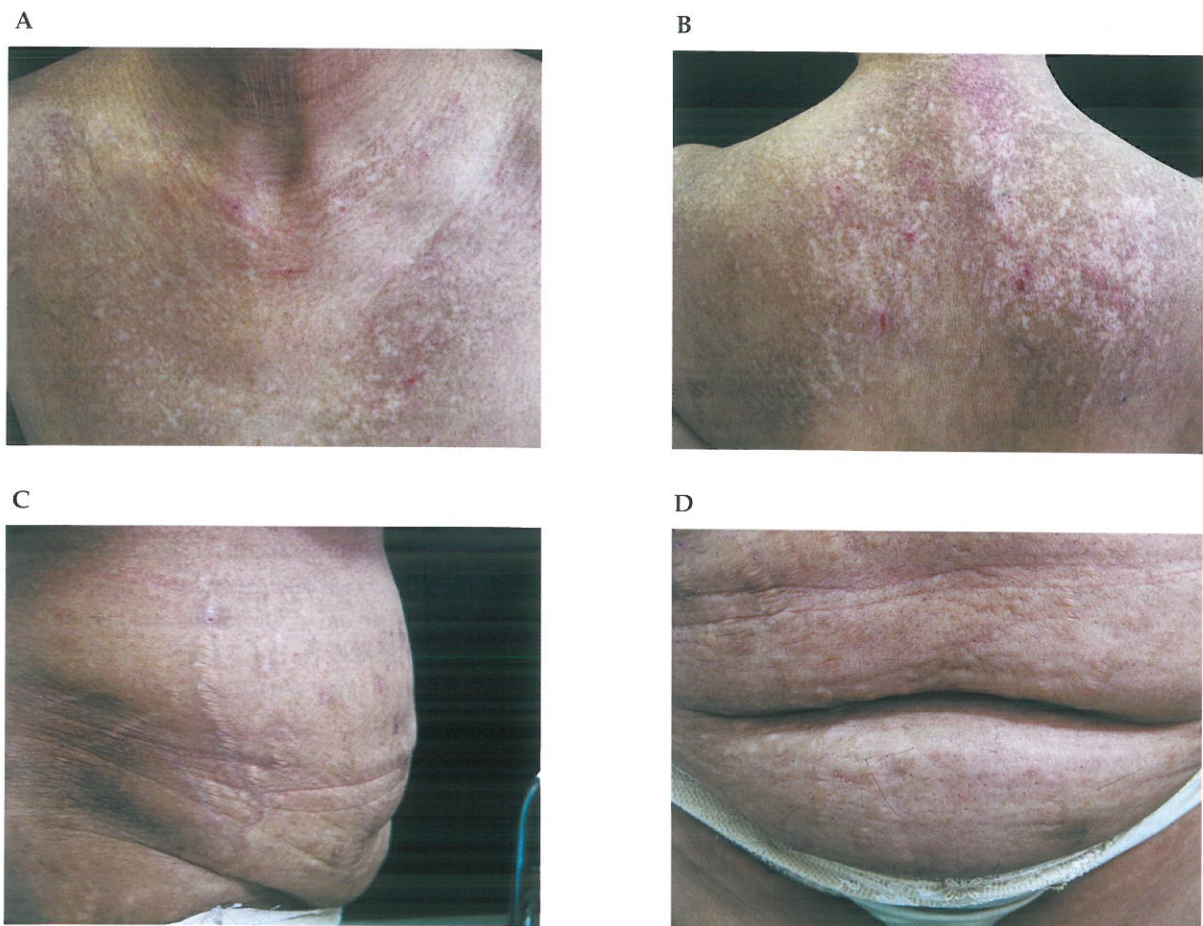
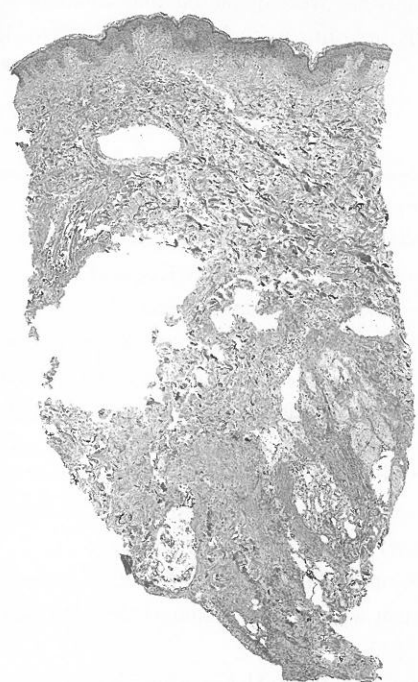


Figure 2 A-D. Clinical appearance of the trunk

A : chest, B : upper back, C : lower abdomen(side view), D : lower abdomen(front view)

A



B

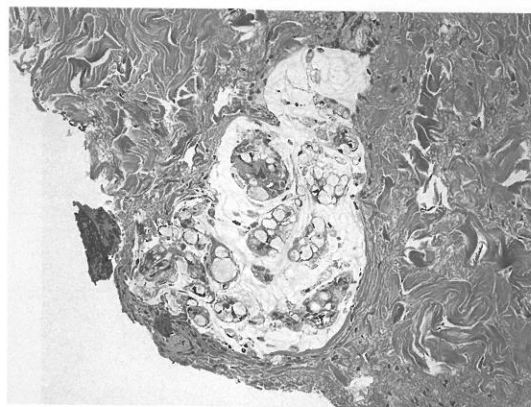
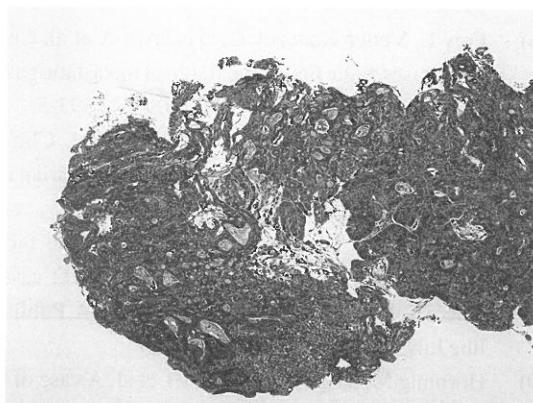


Figure 3 Histopathology of the abdominal skin biopsy :

Signet-ring cell carcinoma in the lymph vessel of the subcutis was shown (hematoxylin and eosin, original magnification $\times 40$ (A), $\times 200$ (B)).

A



B

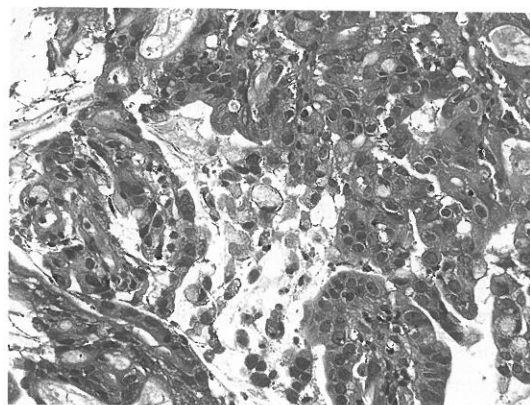


Figure 4 Histopathology of the gastric mucosal biopsy

(Signet-ring cell carcinoma : (hematoxylin and eosin, original magnification $\times 40$ (A), $\times 200$ (B)).

ceived chemotherapy with cisplatin and oral tegafur ; combined with gimestat and otastat potassium (TS-1[®]). After three courses of chemotherapy, there was hair regrowth. She died 12 months after the diagnosis of stage IV gastric carcinoma.

Discussion

Skin manifestations of internal malignancy may be classified as 1) skin metastasis, 2) paraneoplastic syndrome, 3) cutaneous manifestations of the systemic carcinogenic disease process and 4) cancer-malformation syndrome. Various dermatomes, such as acanthosis nigricans¹⁾, the sign of Leser-Trélat²⁾ and papuloerythroderma of Ofuji³⁾ may be associated with gastrointestinal malignancy.

A well-recognized but rare presentation of scalp metastasis is alopecia neoplastica, which occurs as a single or multiple areas of cicatricial alopecia. Alopecia neoplastica due to metastasis from gastric carcinoma is extremely rare. To the best of our knowledge, only 4 cases have been reported⁴⁾⁻⁶⁾. In our case, it was very difficult to determine the etiology of the patient's hair loss. Histological examination of a scalp biopsy showed no metastatic signet-ring cells and an increased collagenous stroma in the dermal and subcutaneous tissues. Chemotherapy resulted in hair regrowth.

Krukenberg tumor refers to a metastatic mucinous and signet-ring cell carcinoma of the ovary originating from the gastrointestinal tract. It has been reported that Krukenberg tumors account for 1 to 2% of all malignant ovarian tumors⁷⁾. In a study of 102 cases of Krukenberg tumors due to GI



Figure 5 Abdominal CT.

Tumor involvement of the lower abdomen as well as bilateral ovarian tumors, and uterine myoma were seen.

cancers made by Qiu et al⁸⁾, the primary and metastatic tumor were diagnosed synchronously in 41 cases, the primary tumor was diagnosed first in 43 cases, and metastases were discovered first in 18 cases. Occasionally, Krukenberg tumors have endocrine function and as a consequence, some patients demonstrate hirsutism and virilization⁹⁾. In our case, the patient had evidence of virilization as suggested by the slightly deeper voice, alopecia, downy hair growth, androgenized facial features, and the high serum levels of total testosterone.

The most common location of cutaneous metastasis from gastric cancer is the abdominal wall, but involvement of other skin sites such as the scalp, neck, axilla, thorax and limbs have been described.

It is difficult to suspect internal malignancy from the chief complaint of hair loss. In this case, the associated

symptoms/signs including abnormal pigmentation and abdominal mass were suspicious and called for further investigations including a skin biopsy of a suspected lesion.

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脱毛，卵巣腫瘍，腹壁皮膚転移から胃癌の診断に至った1例

鈴木亜紀子，佐藤友隆，岸野竜平，小松英嗣

新井宏治，村田有也，前島新史，倉持 茂

要 旨

デルマドロームは内臓悪性腫瘍に関連した皮膚の変化の総称である。我々は，胃癌に関連したそう痒を伴う脱毛と腹壁皮膚および卵巣転移が内臓悪性腫瘍の初発症状であったまれな腫瘍随伴皮膚病変の1例を報告する。この症例報告は胃癌診断に先行してデルマドロームを認めた症例の診断過程を記載するものである。

キーワード 脱毛，皮膚転移，胃癌，デルマドローム，Krukenberg 腫瘍

国立病院機構東京医療センター 皮膚科 1) 消化器科，2) 産婦人科，3) 臨床検査科 †医師
別刷請求先：佐藤友隆 国立病院機構東京医療センター 皮膚科 〒152-8902 東京都目黒区東が丘2-5-1
(平成23年3月25日受付，平成23年4月8日受理)