

# Problem-based Learning

## CASE ESSAY 3

### 83-Year-Old Man with Myelodysplastic Syndrome and Bruise-like Skin Lesions

A 83-year-old man was referred because of an infiltrated erythematous plaque on his right calf. The patient has a long history of myelodysplastic syndrome (MDS) of the RAEB type (refractory anaemia with excess of blasts) which was treated solely with blood transfusions. On admission the patient was not febrile. His right calf was oedematous with violaceous erythema but without bullae. Peripheral pulse was normal. Laboratory findings showed moderately elevated C-reactive protein and SR; leukocyte count was  $2.9 \times 10^9/l$  with normal differential count. Skin cultures revealed moderate growth of *Staphylococcus aureus*.

**The first diagnosis to consider is CELLULITIS OR ERYSIPELAS. In a setting of probable immunodeficiency (the patient has MDS) the course may be insidious without fever or leukocytosis. Prompt antibiotic treatment is indicated, especially in view of the danger of the development of ABSCESS OR NECROTIZING FASCIITIS. Finally, DEEP VENOUS THROMBOSIS should be high on the list of differential diagnoses.**

Ultrasound and Doppler scans ruled out necrotizing fasciitis, abscess, or deep venous thrombosis. The patient

was treated with intravenous dicloxacillin but his skin lesions progressed. He developed a more violaceous, infiltrated mass resembling of haematoma with central ulceration (Fig. 1).

**Skin lesions progressed in spite of relevant antibiotic treatment and this strongly argues against classic cellulitis or erysipelas, which are caused by Streptococci and Staphylococci. Earlier cultures were obtained from skin swabs and they can give a false-negative result if the infection focus is localized below the skin surface. Atypical infections found in immunosuppressed patients should also be taken into account. ASPERGILLOSIS, HISTOPLASMOSIS, NOCARDIOSIS OR ATYPICAL MYCOBACTERIA are all known to give skin infections that resemble those of this patient. Necrotizing soft-tissue infection can also be caused by anaerobic *Clostridium perfringens* or fecal flora such as *Pepto-streptococcus*, *Bacteroides fragilis* or *Escherichia coli*. At this stage of the diagnostic process the elimination of an infectious cause has a high priority. A biopsy should be taken for microbiological investigation and for histology.**



Fig. 1. Skin lesion showing violaceous, elevated border and central ulceration.

Four mm punch biopsy was taken from the central, ulcerated portion of the lesion. Histopathology showed tissue necrosis, cultures for bacteria and fungi was negative. In the meanwhile the patient developed a similar lesion on the contralateral leg and a violaceous infiltration on the scalp.

Negative microbiological workup argues strongly against an infective cause. The lesions progressed but the patient did not develop systemic signs of infection or organ failure that could be expected at this stage of bacterial or fungal infection. These observations

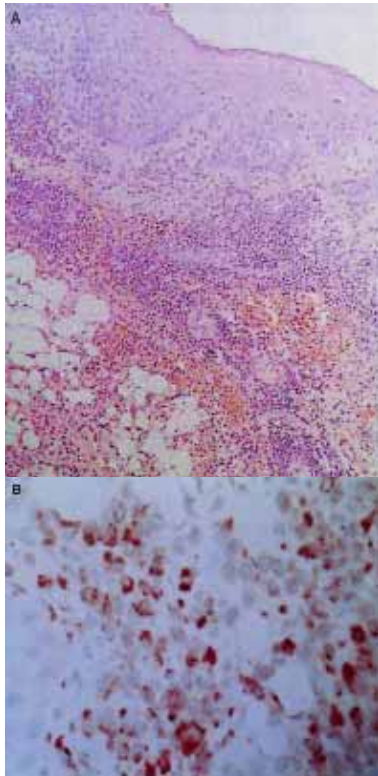


Fig. 2. Biopsy sampled from the border of the lesion shown in Fig. 1. A) haematoxylin and eosin staining (x100), B) expression of a myeloid marker CD68 (x400).

render the infective cause less likely. In view of the underlying MDS we would like to consider skin diseases associated with this condition. According to the literature the patients with MDS develop VASCULITIS, SWEET'S SYNDROME, PYODERMA GANGRENOSUM and GRANULOCYTIC SARCOMA. The latter condition is also called ALEUKAEMIC LEUKAEMIA CUTIS or CHLOROMA and is characterized by the presence of myeloid leukemic blasts in the skin without the involvement

of peripheral blood or bone marrow. Vasculitis and Sweet's syndrome are unlikely in this case, but second biopsy should be taken to exclude pyoderma gangrenosum and granulocytic sarcoma.

New biopsy was obtained from the infiltrated, but non-ulcerated portion of the lesion. Histology showed a diffuse infiltrate of pleomorphic and atypic cells in the dermis (Fig. 2A). Surface marker analysis revealed presence of myeloid markers CD43, CD68 and myeloperoxidase (Fig. 2B).

**The histologic findings are highly suggestive of GRANULOCYTIC SARCOMA. Full haematological work-up should be performed.**

Bone marrow biopsy showed 21% of myeloid blasts. The patient received radiotherapy and chemotherapy with mercaptopurine. During the following 6 months he progressed into acute myeloid leukaemia and died of this disease.

### Comment

Both specific and non-specific skin lesions have been described in patients with MDS<sup>(1-2)</sup>. Granulocytic sarcoma is the most serious complication of MDS and is likely to constitute a negative prognostic

factor. Aractingi et al. (2) reported that 18 out of 36 patients with MDS with granulocytic sarcoma died of disease progression. Granulocytic sarcoma may be a difficult diagnosis to make as it clinically mimics haematoma, abscess, cellulitis or deep venous thrombosis. This case underscores the necessity of early biopsy (repeated, if necessary) when dealing with patients with MDS. Moreover, the biopsy findings on the haematoxylin-eosin stained sections may be fairly unspecific so the clinician should always order myeloid marker investigation. Unfortunately, no effective treatment of granulocytic sarcoma is available at present.

### Further reading

1. Avivi I, Rosenbaum H, Levy Y, Rowe J. Myelodysplastic syndrome and associated skin lesions: a review of the literature. *Leuk Res* 1999;23:323-330
2. Aractingi S, Bachmeyer C, Micelea JM, Verola O, Rousselot P, Dubertret L, Daniel MT. Unusual specific cutaneous lesions in myelodysplastic syndromes. *J Am Acad Dermatol* 1995;33:187-191

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