Current Diagnostic Pathology (2005) 11, 236–244

Current
DIAGNOSTIC
PATHOLOGY
www.elsevier.com/locate/cdip

MINI-SYMPOSIUM: INFLAMMATORY SKIN PATHOLOGY

Panniculitis

Niamh Leonard*

Royal Liverpool University Hospital, Liverpool, UK

KEYWORDS
Panniculitis;
Erythema nodosum;
Erythema induratum;
Subcutaneous panniculitis-like lymphoma

Summary The correct diagnosis of panniculitis is challenging but not impossible. Although there can be many differential diagnoses, the recognition of specific patterns and features makes the diagnosis more straightforward. Common entities and helpful features will be discussed in this article. Subcutaneous panniculitis-like lymphoma will also be discussed as it is a rare but important differential diagnosis.

Introduction

Inflammation of the subcutaneous fat is known as panniculitis. The diagnosis of panniculitis can be difficult for a number of reasons. Firstly, there are many entities to consider; a recent review[1] of 329 cases of panniculitis had 45 different diagnostic categories. Secondly, the clinical history may not be useful in distinguishing one entity from another. Finally, the biopsy needs to incorporate fat lobules for a diagnosis to be made and so must be deep. Incisional biopsies are preferable to punch biopsies. Algorithms have been used to facilitate the diagnosis of most inflammatory dermatopathlogy. This approach can be useful but is overly restrictive for some cases. A suggested plan for diagnosing panniculitis is as follows.

- Is the process predominantly septal, predominantly lobular or difficult to tell?
- Is there vasculitis, and if so, is it present in large vessels in septa, or in smaller lobular vessels?
- Is there a diagnostic process in the dermis that has extended into the subcutaneous fat to produce the panniculitis?
- Are there more specific features, such as calcium in vessels, or germinal centres?

This article will initially consider two common entities; erythema nodosum (EN) and nodular vasculitis. It will also consider entities with more specific features such as polymorphs or vasculitis, and then discuss subcutaneous panniculitis-like T-cell lymphoma (SPTCL) of the skin. An attempt is made at the end of the article to discard some meaningless and unhelpful terms.

Erythema nodosum

EN is the most common type of panniculitis. It accounted for 29% of cases seen in Diaz-Cascajo et al.'s paper.[1] It typically occurs in middle-aged

*Tel.: +44 151 706 4513.
E-mail address: niamh.leonard@rlbuht.nhs.uk.

0968-6053/$ - see front matter © 2005 Elsevier Ltd. All rights reserved.
doi:10.1016/j.cdip.2005.04.002

females and presents suddenly with tender subcutaneous lumps on the knees, shins and ankles. At first, the lesions are red and raised. Subsequently, they flatten and the colour changes through purple to a yellow/green bruised appearance.[2] Associated systemic symptoms include fever, tiredness, arthralgia, headache, cough, abdominal pain, vomiting and diarrhoea. EN is associated with a number of systemic conditions including infection, sarcoidosis, rheumatological diseases, inflammatory bowel disease, medication, auto-immune disorders, pregnancy and malignancy.[3]

The histopathological features of EN[4] (Figs. 1–4) are predominantly septal but may spill over to involve fat lobules. Early lesions have widened septa with oedema and polymorphs, followed by eosinophils, lymphocytes and histiocytes. There is also haemorrhage. Fully developed lesions have thickened septa with central fibrosis, granulomatous inflammation, and granulation tissue at the edge. This process can spill out into the fat lobules where there is fat cell necrosis. Late lesions show fibrosis with some residual inflammation. The fat returns to normal eventually with no scarring. The

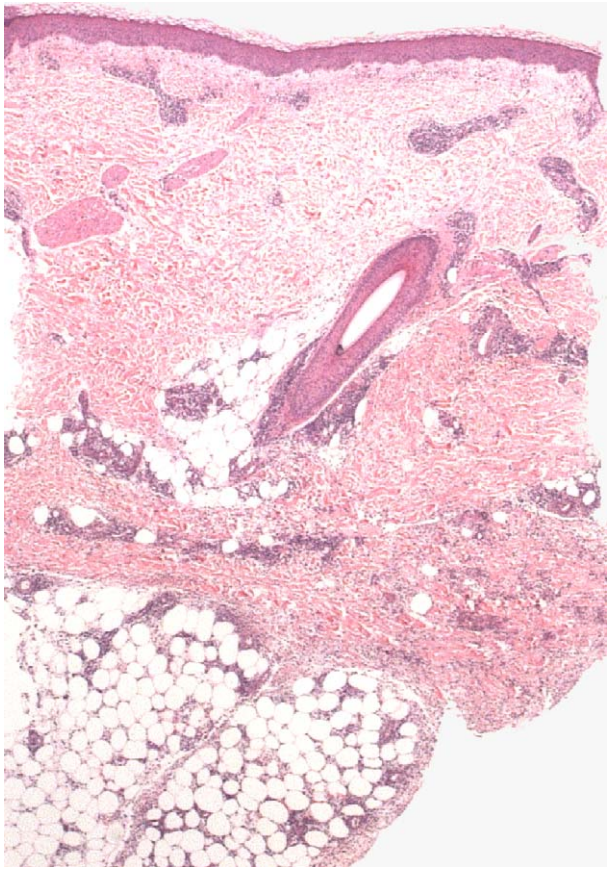

Figure 1 Early erythema nodosum. There is mild superficial and deep dermal inflammation with early thickening of septa in the subcutaneous fat.

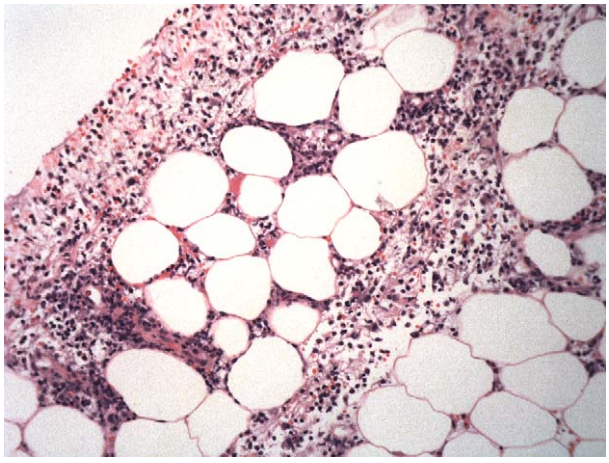

Figure 2 Early erythema nodosum. There is septal oedema with neutrophils and haemorrhage.

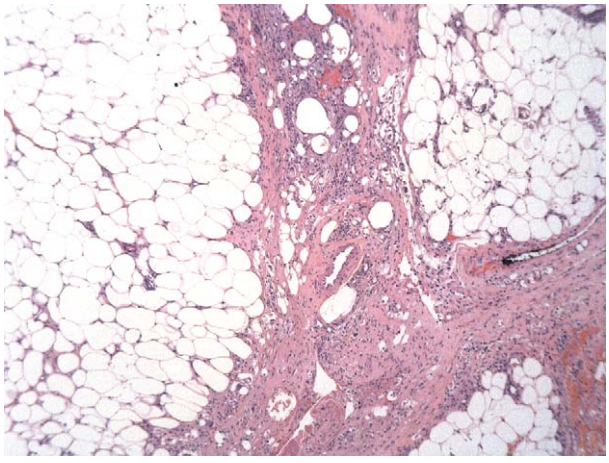

Figure 3 Established erythema nodosum. There is septal thickening with mainly normal lobular fat.

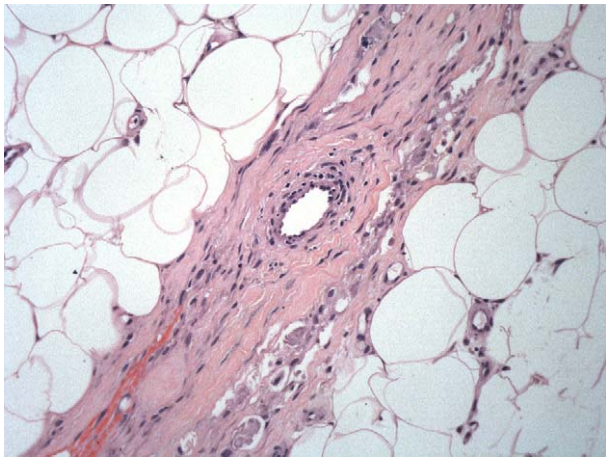

Figure 4 Established erythema nodosum. There is fibrosis with collections of histiocytes.