

Answer to Quiz 1

(From Page 48)

Transepithelial Elimination In Cutaneous Leishmaniasis

The term "transepithelial elimination" was coined by Mehregan⁽¹⁾, to describe extrusion of materials foreign to the skin through pores between cells of the epidermis or hair follicles. The validity of this histopathological observation has been confirmed in animal experiments⁽²⁾, and a variety of tissues, substances and organisms eliminated in this way have been reported.

Cutaneous leishmaniasis is not known to be endemic in Qatar. It is seen mainly in expatriates, or less commonly in Qatari nationals who have visited endemic areas such as certain regions of Saudi Arabia, Iran, Sudan, Egypt and Pakistan. The present case illustrates transepithelial elimination of leishmania amastigotes through epidermis and hair follicles in cutaneous leishmaniasis reported only recently⁽³⁾, although leishmania organisms in the epidermis had been previously observed⁽⁴⁾ in up to 40% of biopsies with high parasitic loads⁽⁵⁾. Figures 1 to 4 demonstrate *Leishmania* amastigotes in large numbers in the dermis, in the epidermis in all layers including parakeratotic layers, and in the epithelium of a hair follicle.

Leishmania amastigotes can, therefore, be added to the expanding list of tissues, substances and or-

ganisms that are extruded through the epidermis and hair follicles by the process of transepithelial elimination; these include elastic fibres, collagen, red blood cells, amyloid, calcium salts, bone, foreign material, inflammatory cells and debris, fungi and mucin (see reference 6 for additional references).

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Answer to Quiz 2

(From Page 49)

RHINOSPORIDIOSIS

Rhinosporidiosis is a chronic granulomatous disease first reported in 1892 independently from India, Argentina and the United States. The lesions preferentially affect anterior nares forming sessile or pedunculated polypoid masses which are highly vascular and friable. The skin, nasopharynx, conjunctiva, lacrimal sac, larynx, urethra, vagina and rectum are uncommon sites of involvement. The disease usually afflicts the younger age group (20-40 years) and is more frequent in males than females. It is histologically characterized by mucosal lymphoplasmacellular infiltrates (Figs 1 & 2), transepithelial elimination of nodular bodies (Fig 1) and destruction of the late stage nodular bodies in histiocytic granulomata with central neutrophilic microabscesses (Figs 3 & 4). There is no medical treatment and the disease is only amenable to surgical excision with risk of recurrences. Rhinosporidiosis usually behaves as a chronic benign condition but occasional widespread and even fatal disseminations have been reported.

The disease is most commonly reported from India and Sri Lanka but smaller series and sporadic cases have been reported from other areas including Gabon, South Africa, Uganda, Uruguay, Brazil, Cuba, Argentina, USA, Canada, Europe, Iran, Japan and the Philippines. All the 16 cases seen by the author in the State of Qatar have been among Southern Indian male immigrant workers aged 22 to 36 (mean 27.5) years. Rhinosporidiosis occurs naturally in man and in a variety of animals including horses, mules, cattle, goats, dogs, wild duck and geese, captive swans and the parrot *Psittacus ondulatus*. However, the disease has not been successfully transmitted to experimental animals, nor has it been isolated and cultivated in vitro. The mechanism of infection is not known, nor has the source of infection been established. There is some epidemiological evidence to incriminate stagnant contaminated water and soil as a source of this ail-

ment. It is not contagious and seems not to be transmitted from man to man or from animal to man. Because the disease has been seen throughout the world but never shown a high prevalence it has been called a "niche" disease, being seen in people living in crowded conditions, but only a very few among these people develop clinical disease (Goihman-Yahr, 1986).

The unique round structures (Figs 1 & 2) histologically diagnostic for rhinosporidiosis were first described by Seeber (1900) as a protozoan, later by Ashworth (1923) as sporangia of a fungus he designated *Rhinosporidium seeberi* and recently as lysosomal bodies loaded with indigestible residues (Ahluwalia, 1992; Azadeh et al, 1994 and 1996). The structures traditionally known as "sporangia" and "spores" have, therefore, been designated as nodular bodies and spheres of cellular waste respectively. Nodular bodies depending on their stages of development and host immune reactions show immunohistochemical staining for a variety of immunoreactants such as alpha 1-anti-trypsin, alpha 1-anti-chymotrypsin, carcinoembryonic antigen, S100 protein, fibronectin, amyloid-p-component, immunoglobulins and complement components^(2&3). [For references and additional information on histochemistry, immunohistochemistry, immunopathology and electron microscopy, see Ahluwalia, 1992, Azadeh, et al, 1994; 1996; Kennedy et al 1995.]

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Answer to Quiz 3

(From Page 50)

Monsel's Solution Granuloma

Case Report:

This 35-year-old Indian man had a 4 mm skin punch biopsy (20/3/88) from the anterior aspect of the chest with a clinical differential diagnosis of sarcoidosis, discoid lupus erythematosus, granuloma annulare and lupus vulgaris. Monsel's solution was applied at the site of the biopsy. Sections show several small tuberculoid granulomata consisting of epithelioid cells and multinucleated giant cells together with lymphocytic infiltrates, predominantly in the upper dermis (Fig. 9 - 12). There was no necrosis in the granuloma or in dermal collagen. Acid-fast bacilli were not found on special staining. There was no nerve infiltration. Histological changes were consistent with lupus vulgaris, or lupoid leishmaniasis. Twenty two days later (12/4/88) the lesion was excised.

The ellipse of the skin submitted measured 19 x 8 mm and grossly showed a rough epidermal surface with an ulcerating lesion 5 mm in diameter. Sections showed two types of lesions: one lesion consisted of non-caseating tuberculoid granulomata with a mantle of lymphocytes in upper dermis like those seen in the first biopsy. There was no iron pigment deposition present in this lesion (Fig. 12). The second lesion was characterized by a wedge-shaped area of granulation tissue with proliferation of fibroblasts (Fig. 3), extravasation of red blood cells, infiltration of relatively small numbers of lymphocytes and macrophages with foreign-body-type granulomata and multinucleated giant cells (Fig. 1&2). Some of the giant cells contained conchoid bodies and coarse dark coloured material (Fig. 4) which stained strongly for iron with Perls' method (Fig. 5-8). Coarse iron pigment encrustations were also present in the dermal connective tissue fibers (Fig. 8) as well as abundant intra and extra-cellular stainable granular iron pigments in this region (Fig. 6&7). Clinical examination and preliminary labo-

ratory investigations available at this stage did not throw any light on the exact nature of the original granulomatous lesion except the differential diagnosis listed above. He was not seen in the skin clinic again.

Discussion:

Monsel's solution (20% ferric subsulphate) is commonly used to control bleeding after minor surgical procedures such as curettage and biopsy. Intra and extra cellular deposits of ferric salt after Monsel's application cause pigmentary changes in the dermis associated with fibroblastic proliferation, fibrosis, infiltration of macrophages and other inflammatory cells. The process of ferrugination can involve fibrin, dermal collagen, striated muscle fibres, perichondrium and even cartilage^(2,3). The iron salts are seen both as particulate encrustations and as powdery golden brown intracellular pigment. The reaction may sometimes be so profuse as to be mistaken for the recurrence of the original lesion posing serious diagnostic dilemmas especially if the original lesion was melanocytic or keratinocytic in nature. It is particularly useful to review the original lesion. In the present case review of the first biopsy proved that there was no iron pigment present in the original lesion and confirmed presence of two different and distinct types of granulomatous lesions in the second biopsy. Special stains and immunohistochemical staining will help in the differential diagnosis in difficult cases. Perls' stain demonstrates the ferric salt deposits and Masson-Fontana stain documents melanin pigments if present. Immunohistochemistry for cytokeratin and S-100 protein may be useful to exclude keratinocytic and melanocytic tumours respectively⁽⁴⁾. Transepithelial elimination of ferruginated collagen fibers has been described^(2,5). Monsel's solution and silver nitrate but not aluminium chloride can potentially produce a radiological shadow. The pathologist and radiologists, therefore, should be informed if these agents have been applied to avoid diagnostic problems and unnecessary procedures^(1,6). Ferric subsulphate (applied to cervical biopsies)⁽⁷⁾ and 30% aluminium chloride (tested in Yucatan miniature hairless pigs)⁽⁸⁾ have both been found to be associated with delay in wound healing due to tissue necrosis induced by these haemostatic agents.

It is worth considering collagen matrix as a sub-

stitute for Monsel's solution, because it is biocompatible and appears to promote wound healing. Collagen matrix has been shown to produce less inflammation, has a lower incidence of wound infection, is associated with a much faster rate of re-epithelialization, and produces a somewhat better cosmetic result compared to Monsel's solution⁽⁹⁾.

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