FIGURE 1: Domestic short-haired cat. Crusting lesions on the pinna. (Image courtesy of Sara Bruce, Cambridge Pet Vet.)

What's your diagnosis?

Lisa D Schmidt of SVS Laboratories, Hamilton, discusses a case of a cat presenting with crusting lesions, and how to get the most out of skin biopsies.

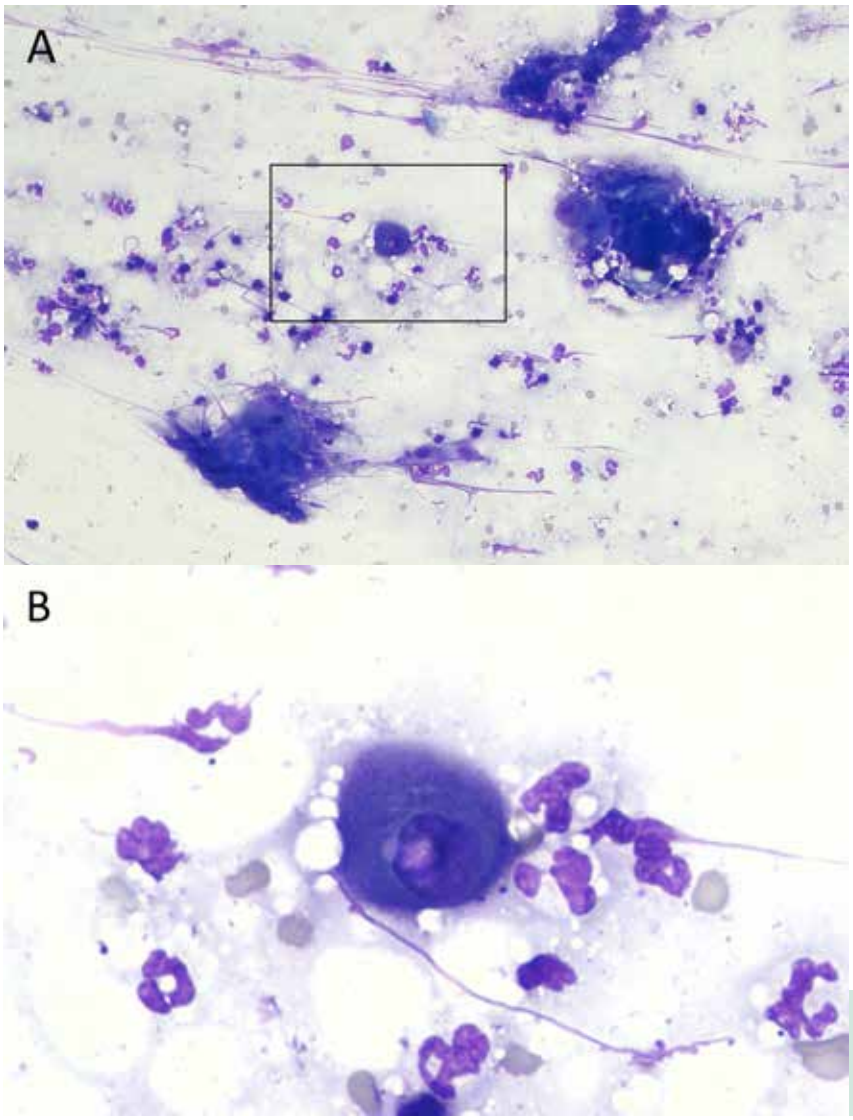

FIGURE 2: Skin scrapings from the pinna. **A.** low magnification. **B.** higher magnification of boxed area from A.

SIGNALMENT AND HISTORY

A six-and-a-half-year-old, intact, female domestic short-haired cat presented for crusting skin lesions that had been present for weeks. The cat was pruritic and had not been treated with flea product, steroids (within three weeks of the biopsies) or antibiotics. The lesions were most prominent on the pinnae, and were also present around the eyes, nose, chin, front feet and nipples. The skin scrapings were taken from the ears and feet, and punch biopsies were taken from the ears, chin and feet.

DIFFERENTIAL DIAGNOSES

In this case, the top differential diagnoses of the pinna lesion should include squamous cell carcinoma and other neoplastic diseases (fibrosarcoma, cutaneous lymphoma), immune-mediated disorders (eg, bullous pemphigoid and pemphigus foliaceous (PF), drug reactions and allergic diseases) and dermatophytosis (aka ringworm).

The cytology from the skin scraping (Figure. 2A) showed numerous neutrophils, a few sheets of epithelial cells and individual epithelial cells

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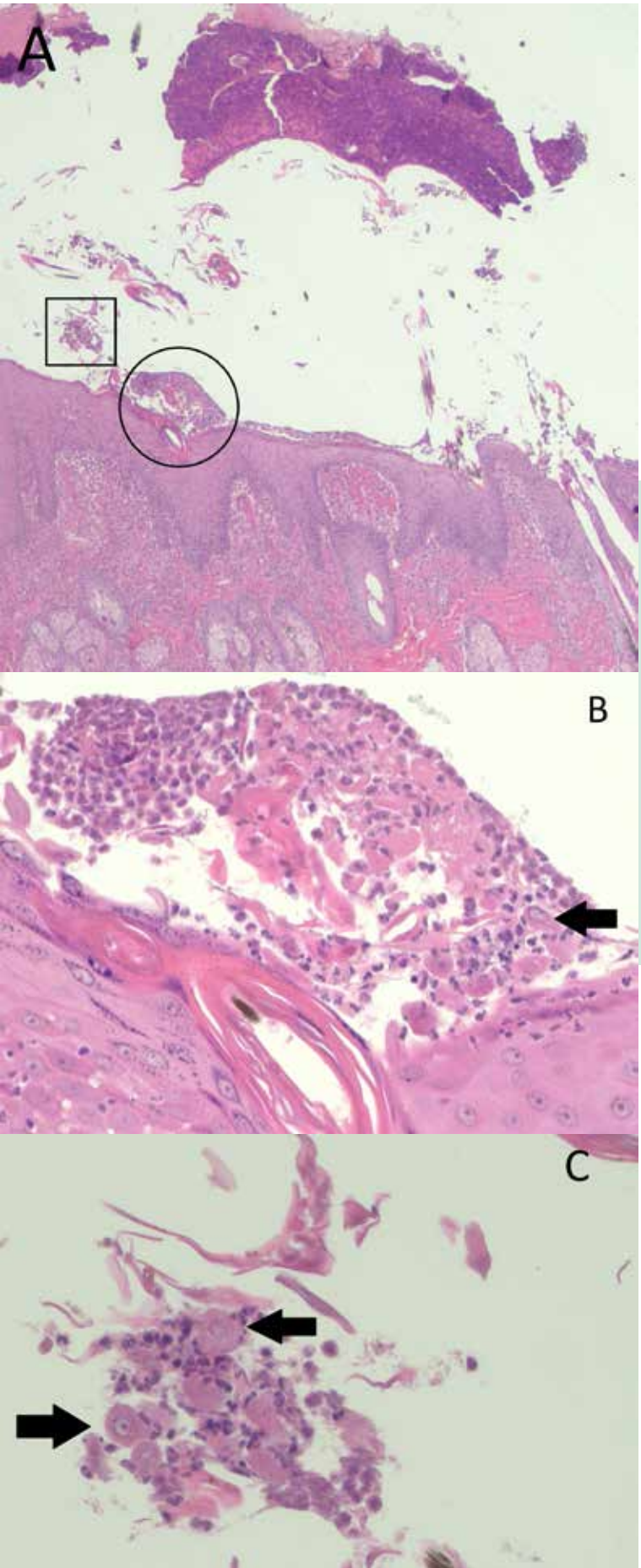

FIGURE 3: **(A)** Artefactual separation of the stratum corneum showing intracorneal pustules with acantholytic cells. Higher magnification of circled area **(B)** and square area **(C)** showing multiple acantholytic cells (arrows).

SKIN BIOPSIES PLAY AN IMPORTANT ROLE IN NARROWING THE LIST OF DIFFERENTIAL DIAGNOSES. **HOWEVER, THE DIAGNOSIS OF SKIN DISEASE IN MANY CASES RELIES HEAVILY ON SIGNALMENT, HISTORY AND CLINICAL PRESENTATION.**

with rounded margins, abundant blue cytoplasm and centrally located nuclei (Figure 2B). The cytologic diagnosis for this case was suppurative inflammation with possible acantholytic cells.

While acantholytic cells are a distinguishing feature of PF they can also be seen with severe inflammatory/necrotic conditions where there is enzymatic degradation of the epidermis. Histology is required for a definitive diagnosis (Figure 3).

GETTING THE MOST OUT OF SKIN BIOPSIES

Skin biopsies play an important role in narrowing the list of differential diagnoses. However, the diagnosis of skin disease in many cases relies heavily on signalment, history and clinical presentation. The main diseases that can be ruled out with biopsies are neoplasms such as squamous cell carcinoma and cutaneous lymphoma.

To get the most out of skin biopsies, a thorough dermatologic history (Table 1) and multiple, carefully selected biopsies (Table 2) are essential. In addition, it is important for the pathologist to know which disease(s) you are trying to rule out! Histologic patterns often narrow the underlying disease process to a few lesions. However, it is the clinical presentation that ultimately differentiates these.

DIAGNOSIS

Neutrophilic pustular dermatitis (intracorneal) with acantholysis consistent with pemphigus foliaceous (PF).

Pemphigus foliaceous

Pemphigus is a group of autoimmune skin diseases characterised grossly by pustules, vesicles, bullae, erosions, and ulcers. Histologically, the lesions are characterised by loss of adhesion between epithelial cells (acantholysis; Figure 3). The most common form of pemphigus is PF.

In the cat, thick crusts are often bilaterally symmetrical on the face (muzzle, planum nasale) and pinnal margins (as seen in Figure 1). However, lesions may also occur around the nipples and on the distal extremities, especially affecting the ungula folds of the claws and the foot pad margins.

In the dog, lesions have a similar distribution, but may also be present in the groin. There appears to be a genetic predisposition in some breeds such as the Akita, Bearded Collie, Chow Chow, Dachshund, Doberman Pinscher, Finnish Spitz, Newfoundland, Chinese Shar-Pei, English Springer Spaniel and Schipperke.

Three forms of PF may occur: (1) spontaneous or naturally occurring PF; (2) drug-induced PF, which may occur during/following the use of antibiotics (eg, trimethoprim-potentiated sulphonamides, cephalexin) in cats and dogs, and the use of methimazole in cats; (3) disease-associated PF, which occurs secondary to chronic, ongoing inflammatory skin disease in cats and dogs (Gross et al., 2005). VS

REFERENCE:

Gross TL, Ihrke PJ, Walder EJ and Affolter VK. *Skin Diseases of the Dog and Cat: Clinical and Histopathologic Diagnosis*. 2nd Edtn. Blackwell Science, Ames, Iowa, USA, 2005

TABLE 1. A THOROUGH DERMATOLOGIC HISTORY SHOULD INCLUDE

☑	Age, breed, sex
☑	Lesion distribution
☑	Lesion appearance, severity and duration
☑	Influence of treatments and recent therapies
☑	Other clinical problems
☑	Abnormalities in blood work or urinalysis
☑	Faecal examination results

TABLE 2. DOS AND DON'TS WHEN BIOPSYING SKIN LESIONS

DO		DON'T	
☑	Be gentle	☒	Do not surgically scrub the site if the lesions are in the epidermis or dermis
☑	Collect multiple samples that represent the full range of lesions	☒	Do not use electrocautery or laser for small biopsies
☑	Include crusts!	☒	Avoid grasping samples or lesions with tissue forceps
☑	Use incisional biopsies or punch biopsies that are a minimum of 4mm in diameter	☒	Do not use a biopsy instrument that is too small
☑	Biopsy before anti-inflammatory (corticosteroid) therapy or after an appropriate wash-out period		
☑	Promptly immerse samples in formalin		
☑	Label samples if they are from different areas		
☑	Submit a thorough history with photographs when available		