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# Acute Pancreatitis

micro drip study guide

November 19, 2021

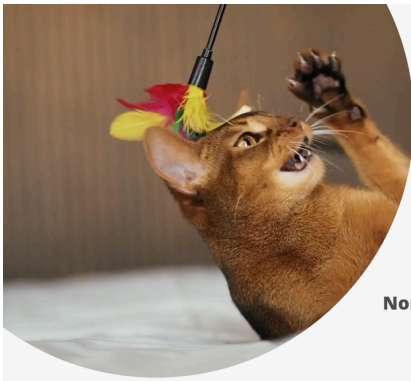
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## Acute Pancreatitis

Normal Safeguards and Phases of Injury

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Welcome to Acute Pancreatitis.

It's one of the most common issues for which we all see our dogs and cats for a variety of clinical signs, typically referable to the gastrointestinal tract.

### Normal Safeguards

Digestive enzymes stored as inert zymogens in acinar cells

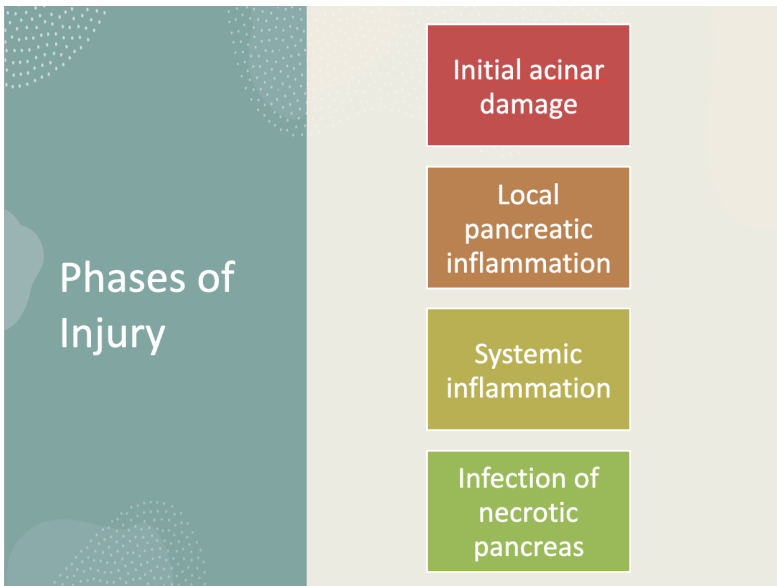
Zymogen granules remain separate from lysosomal granules enclosed in membrane-bound organelles

Pancreatic secretory trypsin inhibitor (PSTI) within acinar cells

Large anti-proteases in circulation

So, when we talk about the pancreas under normal circumstances, the pancreas is a relatively well-protected organ. So we have these potent digestive enzymes that are stored in their inactive form. And they're kept separately from lysosomal granules.

Now things like pancreatic secretory trypsin inhibitor--that's a big mouthful of words--that's in the cytoplasm of acinar cells, and it binds to trypsin. So it prevents it from doing its digestive tasks. And we also have large anti-proteases in peripheral circulation that can combat any prematurely released digestive enzymes.



And so we think of the pancreas being damaged in phases. So the first phase is the initial acinar damage. And that inevitably is going to lead to hopefully local pancreatic inflammation.

We just want to keep it isolated to the pancreas, but as we all know, unfortunately, despite the body's best efforts, or because of concurrent illnesses, that local pancreatic inflammation isn't always contained. Sometimes these pro-inflammatory cytokines that are produced in that local pancreatic environment gain access to the systemic circulation.

And they go off to affect other organ systems, like the kidneys, like the liver, like the lungs in cats, in particular. So as much as we always want that local inflammation to remain very focally in the region of the pancreas, we don't always get our wish. And the inflammation becomes the systemic. Our patients develop, for example, systemic inflammatory response syndrome.

And then, of course, because of splanchnic circulation, a dirty intestinal tract, for lack of a more classy way of saying it, the pancreas can also become colonized with gastrointestinal bacteria, leading to infection and necrosis.