# The AMR Vet Collective Podcast 1:

# Microbial Skin Disease with Linda Vogelnest

## Transcript

**Kellie Thomas:** [00:00:00] Hello and welcome to the very first AMR Vet Collective podcast. I'm your host today, Dr. Kellie Thomas. We hope to bring you these podcasts a few times throughout the year. The idea is to cover presentations that are commonly seen in general practice, be that small animal mixed or equine practice.

To discuss some of the ethical issues around antimicrobial use and stewardship, to look at some of the evidence around what we should be doing, especially when that is an introduction of change for the way we've been doing things for a long time and to kind of make sure that we're staying up to date with what's happening in terms of resistant organisms, both in Australia and internationally.

So these podcasts are for you. The idea is that you can pop your headphones on, head out for a walk with the dogs, head out for a jog, just whatever you want to do to relax at home, maybe you're cooking dinner. And we can kind of be in your ears, having a bit of a chat around some really important issues that affect our daily practice.

We want to talk to you about topics that you're interested in and that matter to you. So please jump onto our Facebook page, send us an email, jump onto our LinkedIn and let us know what kind of topics you would like discussed, any in particular people you'd really like to hear interviewed and we'll try and make sure that we keep our podcasts in line with what you guys want as veterinarians.

So today's guest for our first podcast, I [00:02:00] could not be more excited is the very wonderful veterinary dermatologist, Dr. Linda . Vogelnest . Linda probably doesn't really need an introduction, but I'm going to give her one anyway. She graduated from the university of Sydney in 1984 and worked in private and university small animal practice in Australia, and the UK for over 10 years before following a longtime interest into dermatology.

Linda achieved membership of the Australian New Zealand college of veterinary scientists for feline medicine in 1997, and then undertook a dermatology residency program through Sydney and Melbourne from '97 to 2001. Linda achieved fellowship of the Australian New Zealand college of veterinary scientists in veterinary dermatology in 2003, she's been working in dermatology referral practice in Sydney for over 20 years.

Her special interests include allergies where the focus is on accurate diagnosis and individualized patient care, pyoderma and skin cytology sampling, otitis and skin histopathology. One of Linda's other passions is teaching dermatology. She teaches at the undergraduate postgraduate and general vet practice levels.

And she's made a number of presentations to general practitioners and at dermatology meetings in Australia and internationally. Linda has a menagerie of rescue pets at home, including a Greyhound Zephyr, massive cross Naila, two cats, Molly, and pixel, as well as

some budgerigars that you'll hear in the background of our interview today. Linda enjoys nature and time outdoors, cooking and eating, travel, and good times with family and friends. Without further ado, here's my conversation with Linda Vogelnest.

Hi, Linda! very Excited to have you with us today. Thank you for agreeing to talk to us.

**Linda Vogelnest:** [00:03:45] You're very welcome. It's certainly a topic that I'm very keen to help promote across veterinary practice in Australia.

**Kellie Thomas:** [00:03:54] Fantastic. So I have to ask, because it's mentioned in your bio that you have this keen interest in [00:04:00] dermatology, I'm curious as well to know a little bit more, what really drew you to go yes, dermatology. That's the specialization for me.

**Linda Vogelnest:** [00:04:07] Yeah. Well, that was never what I said at, at all. In fact it was just wandering through doors that opened. But I did become frustrated in general practice, not knowing how to manage all the cases that would come in the door every day. So it started just with doing some further education and some continuing education courses going to  courses and doing some online work.

And then the more I learned, the more I felt well, yay! I can actually achieve something here in practice and change things. And so my interest just followed the road really. And the opportunity came up to specialize. It was never something that I particularly even considered doing in any field. So yeah, it was just certainly not a preconceived idea.

**Kellie Thomas:** [00:04:57] So I was lucky enough to be taught by Dr. Vogelnest. I'm not sure you would remember Linda, but as a final year vet student. And one of the favorite things that I learnt and I found to be hugely useful in practice was sticky tape sampling. So we're going to talk a little bit about that today. Linda and Sally Granger at Versatile Vets have kindly allowed us to share a video demonstration of Linda showing us how to do a sticky tape sample, and also how to interpret it under the microscope, which you can see on our website on the Continuing Education page.

And I'll post a link in the notes as a part of this podcast post as well. So, why did you get particularly involved with sticky tape sampling? How did you first come across it? When did you start using it? Why do you think it's a useful technique?

**Linda Vogelnest:** [00:05:44] Yeah, that's a good question. When did I start using it? It's just been part of my practice for forever, but no, it wouldn't have been,  I would have started using it probably when I started doing a distance education course in derm with Ralph Mueller and Sonia Bettenay and [00:06:00] that's probably where I got introduced to sticky tapes. I don't think I would have done it beforehand at all. They were certainly always passionate about doing skin cytology. So yeah, it was when I'd gone partway along my early education into derm , where I adopted it.

**Kellie Thomas:** [00:06:18] And you've stuck with it. So what is it about the technique that you like in practice?

**Linda Vogelnest:** [00:06:24] You really can't tell what's happening infection wise without it, is the bottom line.  I hardly do a case, whether I'm in general practice mode with clients who don't have much money, and just need a practical solution, or whether I'm following through

the highest end of cases, I can't make wise decisions on what to do with those patients without cytology.

So they tell me about any component of bacterial superficial, bacterial pyoderma, or Malassezia dermatitis or combinations of those and also otitis with pinnal lesions and otitis it can be (the) more useful test as well. So anywhere on the skin that we've got problems, it's, it's the way to know what infections we have and whether you do have infection or don't have infection.

**Kellie Thomas:** [00:07:15] And I'm curious, what range of different animal species have you used sticky tape sampling in and I guess secondary to that, what kind of lesions are we talking, really only superficial lesions, only dry lesions. What scenarios would you use sticky tape in, in practice?

**Linda Vogelnest:** [00:07:32] Yeah, pretty much any lesions, there's less adherence when they're wet lesions. So wet skin, I've done many animals and Marine animals (are probably) the most difficult to get anything useful off cause their skin is always wet. But, but the key for those, you can still get adherence of keratinocytes onto your tape. So, the key is to, without wiping, just to dry this area that you're going to sample with gauze swab blotted [00:08:00] onto there, well beforehand but cats and dogs horses, livestock, pretty much any lesions on those are amenable to sticky tapes.

Even if they're a little bit weepy, oozy lesions, again, just dab off the surface with the swab. So they're not too moist and then collect your sample. So they're such a versatile test to screen skin.

**Kellie Thomas:** [00:08:24] One of the other things I've found great about them in practice is often when you've got those patients that don't really like to be still for long you're on your own, you don't have anyone to help you. The owner might not be very able to help . I find them quite easy to kind of still grab a sample without stressing the patient out too much or causing too much drama.

**Linda Vogelnest:** [00:08:45] Exactly, they're very well tolerated. And, and it's, if you can handle that part of the body, you can pretty much do a sticky type.

**Kellie Thomas:** [00:08:51] I guess The other thing that I was interested in, in the video you talked about sometimes you'll get sticky tape samples sent to you. So I guess my understanding was always that once you collected them, they could last a little while, but after staining, it's ideal that you assess them reasonably quickly. So How long can they really last for before you stain them? And once you've stained them up, how quickly should you try and look at them?

**Linda Vogelnest:** [00:09:15] Yeah, I'm not quite sure how long they last they last at least a week or so unstained. And I haven't sat down and tested that for very long. Like I think optimally, you should try and look at them within 24 to 48 hours of collecting, but I don't think it matters if you've collected them and sit them there till the end of the day or the next day. There's no problem with that. As long as they're not stained. And I think they're still very accurate.

Where once you stained them, they lose definition fairly quickly and some cells or structures on there even more so. Eosinophils it's faster, you lose their little pink coloration very quickly. Demodex mites. If you ever see those anymore, [00:10:00] disappear and die very quickly. So once they're stained ideally I examine them straight away. So if there's going to be any delay in looking at them, I don't stain in them until I'm ready to look at them.

**Kellie Thomas:** [00:10:11] Okay. That's good advice. I guess The other thing that I've come across a little bit in practice with people who aren't familiar with the technique is they're comfortable collecting the sample, but they're not super comfortable looking at it under the microscope and you talk through cells really beautifully on that video that I've mentioned, but what are the most common mistakes people make with interpretation? If they're not used to looking at sticky tape preps compared to other types of cytology?

**Linda Vogelnest:** [00:10:37] Yeah, I think it's the over-interpreting, overseeing things that aren't there. So I'm looking for foci of neutrophils is so important to make any bacteria relevant. And the occasional spicks and specks down there, you're sort of thinking you should be seeing bacteria, but they're not bacteria. So it's turning spicks and specks and things into microbes when they're not truly there.

And I guess the pressure's there to feel like you should know how to read things, but it takes time to become comfortable with it. So I'd encourage everyone to try not to feel any pressure, just be very objective. But what I say in teaching classes is if they don't convince you, then ignore them. So and if they're not repeated similar structures, then they're probably debris and material.

And I think that's the main error is over-interpreting. I think once you'd see infection, once you see those yeasts, once you see the intracellular bacteria, very convincingly, it's very straightforward. It's over-interpreting them that's the common mistake. .

**Kellie Thomas:** [00:11:49] And what would you say on a sticky tape sample, if you're looking for evidence of a superficial pyoderma, for example, in a dog or a cat, what's your kind of indication that yes, you are very likely [00:12:00] dealing with a bacterial infection, a superficial bacterial infection.

**Linda Vogelnest:** [00:12:03] It depends a little bit on the actual lesions that you've sampled. So most lesions, alopecia, circular alopecia with peripheral scaly or eroded ulcerative lesions, lichenified hyperpigmented lesions, all of those fairly uniform ones, you'll see lots of bacteria fairly readily. But it's still searching for multiple clumps of neutrophils and finding the cocci, almost universally, associated with those. And it's usually straightforward on those skin lesions. It's a little bit harder on papular presentations and you really have to, when you're collecting your sample, sort of push your nail into the papule a little bit, just to exude a little bit of the contents of the papule, if that's possible.

And you'll find your little foci of neutrophils are a lot more scant and you do have to search around a lot more. And even if in that, with those lesions, if I find a few small foci that have bacteria, then that's enough evidence with those clinical lesions to say, right, I've probably got pyoderma.

Whereas when I've got all the other spectrum of lesions, I want to see a lot of bacteria around to be convincing.

**Kellie Thomas:** [00:13:17] Absolutely. So it's in conjunction with the clinical picture and the actual lesions that you're seeing. Moving on to what would be maybe your next step from cytology , if you're looking to take samples from skin lesions for bacterial culture, and I know you did a study in 2014, that essentially found minimal difference between using a dry swab, a saline- moistened, swab, or a skin surface scraping for superficial disease in any case. So I wanted to know which type of those collection techniques do you tend to prefer and why?

**Linda Vogelnest:** [00:13:52] Yep. Just a good old, dry swab is all, all you need. And generally we're sampling based [00:14:00] on cytological evidence that we've got a lot of bacteria. So it's on those same lesions, you just rubbing your dry swab reasonably firmly, but I try and count for 10, 15 seconds. So I might do it on a few, one spot for five seconds, which is actually quite a long time when you're standing there rubbing on one little lesion and then move to another and move to another and more is better in that instance. But that's all you need to do. Pop it in the transport media and send it off.

I must say also putting those swabs in the fridge until they're picked up is a good thing because the moister skin is the more likely you'll have some of the other normal flora in very low numbers and species, some of the rod species, bacillus species, can multiply very quickly when it's humid.

So it's good to put your sample in the fridge. Staph are very hardy. They'll be fine in there. And other things won't tend to grow, and then when they're back to the lab and processed, you've got a good representation of numbers ready to culture. Like you would off the skin you sampled.

**Kellie Thomas:** [00:15:07] And what would be for yourself, an indication to go to culture? Would that be after you've done cytology and you haven't had success with your first line therapy? I guess it's different for you in referral practice not necessarily seeing those first opinion cases, but what would be your way of working and your advice for general practitioners?

**Linda Vogelnest:** [00:15:25] Yeah, well, it is, it is very much response to therapy. So if you have diagnosed pyoderma with your cytology and you've treated appropriately generally with cephalexin or sometimes amoxiciilin, amoxi-clav at appropriate doses for two and three weeks of time, and when they come back in, still on those antibiotics, you're still seeing lots of bacteria and your lesions haven't resolved and bacteria associated with neutrophils, then that's when I'll be reaching for culture. And that's exactly the same, whether I would be in general practice or specialist [00:16:00] practice, that's the criteria to be thinking about, okay, this patient might have MRSP. And we see a lot of it. Every week, a number of them during the week now, so it is very prevalent in Sydney and certainly we see some of the worst cases, so there'll be more there, but, but we're seeing it very regularly.

So the other time that I culture up front is with a patient that has had confirmed MRSP in the past and they have a recurrence of pyoderma and we've been trying to do everything we can to control whatever disease it is underlying that to prevent that happening. But before

reaching for any systemic antibiotics anymore, in that patient, in those patients, we'll always culture, assuming their cytology confirms infection again.

**Kellie Thomas:** [00:16:48] So you perform cytology as well at that visit, but the same visit that you would collect the culture sample?

**Linda Vogelnest:** [00:16:54] Essential. Absolutely essential because you can't look at that skin and say the pyoderma hasn't resolved until you've done your cytology because the lesions can trick you and you can't just rely on classical lesions, you can't confirm that without your cytology too.

**Kellie Thomas:** [00:17:12] Excellent. And I really do want to come more to your experience, particularly seeing MRSP in practice, but I just wanted to ask you while we're on this culture sampling technique topic, would your approach be different for a deep pyoderma? And I think the other topic that comes up a little bit, for practitioners is when there's sort of an abscess or a draining tract, how to best sample from those types of lesions.

**Linda Vogelnest:** [00:17:41] Yeah, deep pyoderma is definitely harder in some cases to get good, cytological convincing evidence of infection. When you've got lots of neutrophils, lots of macrophages, lots of puss coming out of these, lesions the inflammatory cells are actually doing a pretty [00:18:00] good job and chasing the bacteria and they're often not many bacteria to see. So you'll have to be a lot more patient scanning around a number of areas. You'll have lots, generally a weeping oozing pussy sample, ,when you stain that up, you'll have loads of neutrophils and often macrophages on there, so you do want to go down at one spot, scan around, see if you see bacteria move to another spot, they have to be very convincing bacteria.

And you will normally find them in deep pyoderma, but they are much more sparse. So without looking carefully, you can think, Oh, there's no bacteria here. And even sometimes when you look very carefully, there are very few bacteria to see, but the lesions, I guess, deep pyoderma doesn't have as many differentials for it.

For typical nodular weeping lesions interdigital, muzzle, the classical deep pyoderma lesions have fewer different differentials and certainly far less common differentials than superficial pyoderma, which has a whole spectrum of different things that can cause similar lesions. So I guess we're lucky in that respect the lesions often tell you this is deep pyoderma.

The cytology is a little bit more evidence. And sometimes very convincing evidence and sometimes not quite so convincing evidence that yep, this is deep pyoderma. If there is doubt and they're not responding, you need to biopsy to know what's going on with deep nodular things. So it's definitely a bit trickier with the cytology side.

**Kellie Thomas:** [00:19:37] So would you biopsy over trying to collect a sample for culture in those particular cases?

**Linda Vogelnest:** [00:19:43] If I'm not seeing many bacteria, definitely. And if you're seeing a lot of bacteria on cytology and they're a fairly uniform population of similar looking Staph or similar looking cocci that presumably are Staph , then you can culture. So your [00:20:00] cytology is a good guide as to how useful culture might be. And if you thinking

deep pyoderma with MRSP, we definitely need to culture because you definitely need systemic antibiotics. And if there are bacteria to see you  can culture from a swab. If they're a very sparse bacteria to see, we can still try and do it from a swab and see what what's grown, but you may need to get a sterilely collected biopsy sample for culture.

And if there's doubt over the diagnosis, you should be collecting a sample for histopathology, as well as your sample for culture.

**Kellie Thomas:** [00:20:39] Excellent. Thank you. Now, I do want to dig in, you've sort of touched on seeing MRSP on a regular basis in practice. It's probably our biggest concern, I would say in small animal practice around multidrug-resistant organisms.

What is your experience at the moment? How has it changed over the last sort of five to 10 years? And what should we be doing when we're isolating these MRSP's in skin infections in general practice?

**Linda Vogelnest:** [00:21:06] Yeah. It's definitely changed a lot in the last 10 years. And we see from a very low numbers of cases for years for decades, we had very, very little resistance in superficial pyoderma.

So, so that's escalated in the last 10 years to be lots of cases when you're working in city practices in many locations around the world. So it is a huge concern as far as  it makes it more difficult to manage those cases, but it also raises the concerns of helping spread or disseminate the  resistant organisms as well. We know that  increased hospital visits and increased use of antibiotics are risk factors for MRSP. So, yeah, so there's multiple concerns.

I guess  with one individual patient, the [00:22:00] concern to me is managing that underlying disease really appropriately because the bacteria are not particularly virulent, moreso than normal Staph so it's not more likely they'll cause infection, but clearly it's harder to, to manage them. So having a good plan for the primary disease is essential. Once we've got MRSP in particular, it's always a good idea, anyhow, but particularly when we've got MRSP , and the focus is trying to reduce the incidence of pyoderma in those patients.

So the risk  from that patient to their owners and family is a discussion too. The risk is very low to have transmission to humans from the animals resistant Staphs. They don't like to set up on human skin, so we've got our own methicillin-resistant Staph aureuses, so the MRSA's in the human world. But there is at risk groups, so  if there are family members that are aged and/or on immunosuppression, then there have been more numbers of cases in people , particularly older people with leg ulcers that are, that animals might be touching.

So that's a discussion we have in the consult room with most of our clients, because of course they're concerned about having a resistant species cultured on their patients as well. And often that question is asked, but also we should be offering some advice on that.

The next level is talking about that case to the ref vets and what do they do to manage that case when it comes in for other routine things in the hospital.

And it depends very much on whether we have that patient's pyoderma well-controlled, in which case the chances of contagion are much, much lower, or if they still have active pyoderma lesions. So [00:24:00] whenever those patients come in, they should have a

cursory skin exam to see that they don't have really active lesions. If they do, then they should be treated really in isolation and barrier nursing so that we're helping to prevent spread to some of our more immunocompromised patients that might be in the hospital that day as well.

So there's a lot going on with the resistant bacteria, for sure.

**Kellie Thomas:** [00:24:27] Yeah. And that's interesting you bring up some of the infection prevention control measures, because I think again, sort of in human health, those are so extreme with any of these colonized multi-drug resistant patients and it's probably a space in which we can do a little bit better in veterinary practice. So there's some new guidelines that have been released, they're Canadian, but they're really useful. So you can find those, I'll link to those on the website as well, but I think it's really interesting. The studies have often found it's things like clipper blades and door handles and keyboards it's, you know, we're sometimes quite good at touching the actual patient and using gloves and washing hands, but, it's, it's not enough to just think about that specific moment when you've got these patients in your hospital.

**Linda Vogelnest:** [00:25:07] Exactly. And when they've got the hard thing is the highest level of risk with these patients is often before you know they carry a number of MRSP because they've come in with their active pyoderma and your handling them and getting your samples and doing your initial work, and it's not until the next visit when they haven't responded that you work out it was MRSP.

The only way to realistically try and reduce spread and reduce hospital contagion is by good hand hygiene and I never used to be very good at doing that. But I have certainly stepped up and try very hard always between patients and almost always between touching a patient and touching the keyboard.

Touching, touching anything between touching the patient. It's a little bit of hand gel. So and you're right. It's all those unthought of places that, that [00:26:00] easily spread the bacteria around. So it, it is of concern in the hospital, but I guess to me, honestly, the major concern is stepping back a bit and thinking about how we prescribe antibiotics, because I see the the cases that come in all the time with their long history. And I know it's hard, it's very hard in practice and everyone's busy and, and they come in for five minutes, 10 minutes, 15 minute consult and it's a busy day and you've got to get them in and out. But we have to stop and think about are antibiotics indicated, which is essentially the whole point of this discussion is when antibiotics are clearly indicated. And there are so many times we fall into habits and I did it in general practice very much and lots of people do, but they're very bad habits of just reaching for antibiotics in case.

And now we've got good, simple tools to tell us, yes, we do need antibiotics or no, we don't in almost every case without, you know, taking away that question - maybe. Maybe is hardly ever there anymore if you do the right, the right little workup.

And sometimes that means collecting your samples, sending them home, busy day, you haven't had a chance to look at your samples to the end of the day, just like waiting for blood test result, really. And you get your test result back and then you instigate your

treatment rather than feeling the pressure to get that treatment dished out in, in the course of their consult.

**Kellie Thomas:** [00:27:30] Yeah, absolutely. I couldn't agree more with that. And I think that's something when you've created a business model, where you're used to giving results and any medication at the time, it can be a bit of an adjustment for both yourself and your clients, but making sure that we're actually making evidence-based decisions is always going to be so much better for our patients and ourselves for our practice culture as well.

**Linda Vogelnest:** [00:27:50] But it's also, it's a win-win for everybody because you get the most efficient treatment for that patient as well.

**Kellie Thomas:** [00:27:58] Yeah. And that was something you sort of mentioned [00:28:00] before. So I guess from the, especially from a general practitioner perspective, what we really need to be doing is, is having a look, making sure we're doing that cytological sampling so that we know do we, or don't we need to prescribe, if we do, is it yeast? Is it bacteria? What do we need to be prescribing? A number of times I've seen patients that I thought we were going to bacterial and weren't bacterial, were actually yeast on samples again, really useful. So I think that's something really important that we can be doing in general practice. But then also you mentioned really looking for underlying disease, particularly with re-presentations of skin disease, identifying that and controlling that well to try and minimize the number of times we need to even reach for those antimicrobials.

**Linda Vogelnest:** [00:28:41] Absolutely. Yeah. And a lot of the difficult cases that we see having recurrent disease are atopic patients, and that's not an easy allergy to manage. But it is essential once you've got an MRSP diagnosis, and they've had recurrent problems to really look carefully at the options that you have to manage that.

And if, if you're struggling to manage them and the owners in any way able to, those cases going to referral and seeing how the specialists deal with them and what they use to try and manage them is important. You know, the two year old dog that has atopic dermatitis and MRSP, that is going to be recurrent for life it's money well spent and time well spent trying to get an effective plan.

**Kellie Thomas:** [00:29:30] You've just touched on another topic that I think's really important around communication with the family and the owners and getting everybody on board, particularly when you've got a chronic disease that we're going to be dealing with over a lifetime. So I guess I'd love to know if you've got any hot tips or advice around communicating with clients around these kinds of cases and how to help make sure that we're all on the same page.

**Linda Vogelnest:** [00:29:58] Yeah. Look, [00:30:00] it's hard and it's forming a connection it's having enough time, for a start, to talk to the owners and some get it quickly and are, you know, on the ball and, and understand what you're trying to go through very quickly. And others, it takes longer. So everyone is an individual. And if you don't have time in your consult that's scheduled to have a little introduction, but then plan a longer consult or another consult where you follow through on that. And it is super important.

Atopic dermatitis is a  really difficult disease. And it's such a common disease. There are treatment guidelines available online freely available, free access. Now it's complicated because it's kind of disease and there's lots of options in there. So it's not a, it's not a five minute read, but they are really useful to get some basics of what to do to manage them.

And the more you understand what your options are, the easier it is to explain that to your owners and go through the pros and cons of what might be good for that patient. And some owners like to have all that information and be involved in the decision. And some owners just want you to make the decision that you think is the right thing for their patients. And whichever works for you and that owner is the right way of doing it for that one

**Kellie Thomas:** [00:31:24] The other scenario that comes up particularly for vets in emergency practice, who might not be seeing a patient on a regular basis, might not have any written history. So you're just getting a verbal history from the owner. Is, is there sort of a responsibility there if you're in emergency practice and you're seeing a patient and the owner says, Oh, this is happening all the time to sort of make sure that that's communicated back to the referring vet. Is it on the emergency vet, do you think to do further workup at the time? Because this is something that's happening a lot in urban practice at the moment we've got emergency centers that might not be seeing patients [00:32:00] at all for GP practice. And obviously that communication is important.

**Linda Vogelnest:** [00:32:06] Yeah, definitely. Look, I think anyone who's a veterinarian has, has a level of responsibility to try and help those patients. And I know time is always limited and you can only talk about so many things, but if it, if it's presented to emergency related to a problem that's been recurrent and, and you feel, yep, this needs to, to have a better long-term plan, even just flagging that is important. It doesn't necessarily mean they have to go to referral even if  that might be optimal. It just means someone in the practice has to take on a long-term plan for that. It's so easy to be trapped in the cycle of treating the flare and getting them to settle. And we have many, many, many owners that come to referral that, that they, that first thing they say to us is we're sick of not having a plan. And the same thing is done each time and it gets better temporarily and then it's back again.

So, so flagging it - it's important that we think about the long-term strategy for managing that disease not just the short-term one.

**Kellie Thomas:** [00:33:22] Yeah, that's something I remember from your teaching as well, Linda, so  always having a long-term plan as well as a flare plan for those short term flare ups. One thing I wanted to ask you quickly, the difference in appearance of superficial pyoderma between cats and dogs?

**Linda Vogelnest:** [00:33:39] Definitely pyoderma in cats can be, can be very aggressive and really flare pruritis in some of our allergic cats. We don't tend to get the circular areas of alopecia, pustules hardly ever in cats, so you don't get some of those classic lesions. You don't tend to get lichenification and [00:34:00] hyperpigmentation either. So they're a lot more uniform, but they look just like self trauma often. They're eroded, excoriated sites sometimes papular, but you'll also have miliiary dermatitis papules that aren't infected, so... they're nonspecific lesions, and again, your cytology is your only way to know. And cats are very helpful, really, because they usually have heaps of bacteria to see or they hardly have any. So they're pretty straightforward once you've get your confidence going, it's a quick test

to do; lots of bacteria. Yep,we need antibiotics. Nup,  can't see any bacteria at all ,often none, then, no antibiotics.

**Kellie Thomas:** [00:34:44] Excellent. And I guess that brings up as well that differentiating between primary and secondary bacterial skin disease. How important is it to make that definition? How clear cut is it? What are your thoughts? What's some advice for practitioners there.

**Linda Vogelnest:** [00:34:58] It's pretty much, always secondary to something. It doesn't mean it's secondary bacterial infection to allergy or hormonal disease. It's sometimes secondary to skin folds and moisture and trauma, but  the skin barrier is designed for a reason and that's to keep, partly to keep bacteria populations out by making the conditions in the skin unsuitable for them to multiply.

So something's going on when you're getting bacterial infection there So I'm always thinking of why the infection's happened and, and some sort of prevention strategy, as soon as we've got bacterial infection. Dogs, they are a little bit more prone to it with all sorts of diseases. So we'll see lots with allergies, but we'll see pyoderma with a whole spectrum of things in dogs.

You don't tend to see that as much in other species. And there's some evidence behind why dogs are more prone to pyoderma, but cats and horses and livestock, you'll see [00:36:00] it in trauma sites or you'll see it in association with, in cats, especially allergy.

**Kellie Thomas:** [00:36:06] And I guess another thing that practitioners sometimes struggle with, and it's sometimes it's very straightforward, but differentiating between superficial pyoderma and deep pyoderma. What would be some advice for practitioners on making that definition in practice?

**Linda Vogelnest:** [00:36:23] Sometimes both can be there together, but  the deep pyoderma is all about swelling and nodular change. So  it's not just thickening like lichenification, but it's nodular swelling. So whereas the superficial pyoderma will be your gamut of fairly superficial lesions from erosions and alopecia to lichenification, hyperpigmentation through papules and pustules, so the whole gamut of things. So it's definitely about nodular swelling.

Sometimes you'll have discrete nodules like interdigital areas. Sometimes you'll have trauma sites like elbow calluses and things, but there's always, compared to adjacent normal skin, you've got a nodular swelling, not just a diffuse change there.

And is the general approach still that if there's a deep pyoderma present and if we're dealing with bacterial disease that it's most likely that it's necessary to use systemic antibiotics in those patients?

Pretty much always it seems as if it is. It depends a little bit on the underlying cause. But mostly your infection is deep and anything on the surface isn't going to penetrate. And even if you're able to stop the inciting cause very quickly, you probably still need systemic antibiotics to treat them.

**Kellie Thomas:** [00:37:49] The other thing with dermatology is sometimes I guess there's been this tendency towards shorter durations of therapy in a lot of other disease processes. We still see [00:38:00] quite long durations of therapy generally in dermatology. So I wondered if you could speak a little bit to why that seems to be the case and whether there are any changes in those trends.

**Linda Vogelnest:** [00:38:10] Yeah, it is a good question. And there, there is no clear evidence to know that three weeks, our dogma of three weeks for superficial pyoderma is actually the right length of time. The theory is it is the time taken between a basal cell in the epidermis growing and being keratinized and sloughing up the top of the keratin layer. Not that you often see, if you look on histo you don't actually see the bacteria usually penetrating quite down that far. So if you look on histopath, they're actually still fairly superficial in stratum corneum and maybe a little bit deeper than that.

So I'm not sure that that theory is accurate and it is possible that two weeks, or 10 days, or maybe even seven days is actually going to be enough. But in practice we see some cases where that length of treatment hasn't been appropriate and we've got very quick recurrence. I'm not sure if that's because we haven't cleared the bacteria or because there hasn't been time for the primary disease to settle down enough. So I think you're right. The jury is still out a little bit and we don't have good understanding of why the recommendations currently are to do a minimum of two weeks and ideally three weeks for most superficial pyodermas.

And I guess what I, when I'm trying to shorten therapy, it's only if I'm seeing those patients back again, or have owners who are very good at reporting and watching the lesions. And if you have complete resolution of lesions a week before your antibiotics stop, that's probably ideal.

**Kellie Thomas:** [00:39:59] I [00:40:00] guess the other thing that is interesting in these cases is around the use of not systemic antibiotics, but topicals. And we seem to have a larger variety of things available these days. What are some topicals that you think are particularly useful, especially in these superficial pyoderma cases where we don't really need to go for systemics and we can assuming compliance and owner cooperation and being on board, we can be using topical therapy on its own.

**Linda Vogelnest:** [00:40:28] So I used a lot of chlorhexadine solution and there's still a little bit of uncertainty about the optimal concentrations to use. It's important to be the solution, not the scrub formulations that have soap bases in them. So solution first, but the concentration, generally I'll use, it comes as 5% chlorhexadine so generally I dilute one-to-one. So we're using two and a half percent somewhere between two and 4% has been shown in a number of studies to be efficacious for Staph which is generally what we're dealing with. So there there's been one study on MRSP that hasn't compared concentrations, but has shown 4% to be very effective.

So, and I guess anecdotally, I find sometimes I'm stepping it up to 4% when I'm worried about, well, I've confirmed MRSP. So pretty much most lesions you can use chlorhexidine on, and mostly it's very effective, but sometimes it can irritate. And so it's picking your skin locations and your patients as to how, how I will use that.

It's also a problem on brachycephalic dogs around their facial folds anywhere near the eyes, because you can induce corneal ulcers quite easily with chlorhexidine. So if it's a way from faces, lateral, dorsal skin, feet, tough [00:42:00] skin, I'm happy to use anywhere between the two and a half and 4% and twice a day when I'm worried about pyoderma or I've confirmed pyoderma.

I have no problem with using that as a routine. If you don't have time to do tape preps, and you're worried that there might be pyoderma, that's going to be very effective for most of the superficial pyoderma cases. Where it might irritate is older patients, axillary, groin, lesions with thin skin, you have to be a little bit more careful.

And sometimes the skin tolerates it really well. And sometimes you'll actually get a irritant dermatitis from it. So my next go to when I've got sensitive skin or close to the eyes would be iovone solution. So again, solution. These are betadines that come as 10% solutions. Depending on what part of the body you want to treat, if you want to be on the facial folds and completely safe for eyes, then we dilute one to 20, which makes it 0.5%, but you can do it stronger than that away.

So axillary, groin, you probably do a 1% solution. So one to 10 dilution. And twice a day, again can be quite effective for pyoderma. Although that's all anecdotal there's nice studies showing chlorhex as effective for pyoderma for Staph, but there aren't good studies showing the iovones.

**Kellie Thomas:** [00:43:28] Despite that, have you found in practice that it has been generally effective when you've needed to use it?

**Linda Vogelnest:** [00:43:35] Yes. Yes, I say. I'm not completely confident. And if I've got an MRSP dog that has, or active pyoderma case that's localized to the facial folds of brachycephalic dogs, I definitely use iovone and I've seen it work well, but I've also seen it sometimes not resolve the problem well, [00:44:00] and then sometimes we'll reach for topical antibiotics rather, rather than antiseptics. And then the main one that I use is fusidic acid, and we only have as a sole fusidic acid product, commercial product in the veterinary world, we only have Conoptol eye gel, which is in tiny little tubes. Which is ok if you've got small little faces, but there's also a fusidic acid ointment, fusaderm, that, it's a human preparation, so we can script out that. And that's an ointment one, which can be quite good for facial folds, localized areas where chlorhex is irritant and you want more effective treatments, so... I'm not sure that iovone works as well. In fact, I don't think iovone works as well as chlorhexidine reliably in all patients.

**Kellie Thomas:** [00:44:51] The other thing I wanted to briefly ask you, I mean, we've sort of spoken primarily about bacteria today, but just seeing I have you, Linda, out of interest susceptibility wise for your yeast and fungal infections that you're seeing in specialist practice, are we needing to be at all concerned about what's happening there? What's your experience?

**Linda Vogelnest:** [00:45:13] Yes, we should be concerned. And I expect in 10 years time, we'll have, who knows how long, but at some time, point in time, we'll have a lot of resistant yeast because we're throwing around a lot of antifungals, just like we have antibiotics for decades at skin.

Yeah. So there are cases of Malessezia dermatitis now that aren't responding to azole antifungals and they're difficult. Some dogs will respond to a different class of antifungal, terbinafine, but some have very poor response, seemingly very poor absorption of that drug. And there aren't many other choices. There's topical, topical nystatin has been effective.

[00:46:00] So I expect we are going to end up in the same arena with yeast over time, as there's no reason not to anticipate that will happen as well. All the more reason to be doing our cytology. You cannot smell Malessezia. You may think you can. And sometimes you're right, but there are plenty of times when the odour is just lots of secretions from all the active glands on those skin, sometimes it's bacteria.

So you need your cytology to know, and treat wisely and manage the underlying diseases. So yeah, I do think we're going to end up down the same road as we have with pyoderma.

**Kellie Thomas:** [00:46:38] One thing I was curious about in that respect is the use of medicated shampoos seems to be quite common, these days, I think the recommendations have changed on frequency. They're often sold through clinics. Often if there is a bit of a smell or the dog's scratching at all, it's something that's kind of an add on at the register. Should we be using medicated shampoos when we don't have cytological evidence that they're needed? And if we do use them, how frequently should we be using them?

**Linda Vogelnest:** [00:47:13] Yeah, that's a really good point. And I think chlorhexidine, we're okay using, because again, it's antiseptic and although there's some evidence of a trend sometimes for chlorhexidine resistance to develop with some bacteria, as far as Staph and the skin it's not common at all and it's still one of our best options to be using. So I don't think it's such a bad thing to necessarily reach for an antiseptic in a shampoo, but I think an active, like an azole, miconazole probably not ideal unless we've got good cytological evidence that, that patient's had infections before.

And even then if we're doing them regularly on the once a week [00:48:00] basis, who knows. We may be helping to contribute to progression to resistance as well. So I'm not sure what the answer to that question, the correct answer, is.

I do use those shampoos in patients that have recurrent disease and it makes a difference for that patient. If they're only, and they're able, the owners are able to do them regularly. And we find with that shampoo, it seems to make a difference to control. The frequency of shampooing is a very individual patient directed answer, I guess. And it depends on whether it helps control their allergic inflammation and makes it easier to manage them or not. And whether owners can do it or not as to how often. So it'll range anywhere from none at all, never bathing them to bathing them twice a week. When you're doing them more regularly, I think it's very important to look at the skin barrier affects that that shampooing might do and think about moisturizing and think about the drying potential of the shampoo that you're using. But it's, yeah, it is a very important question and I'm not sure we are doing the right thing being by having a little bit of antifungal in a regular over-the-counter shampoo.

**Kellie Thomas:** [00:49:24] Last time I was sort of looking into it there was no golden bullet around nutraceuticals or barrier creams or things to support skin. Is there anything new?

**Linda Vogelnest:** [00:49:34] No. (Laughs.) For such a big area, even in the human world where it's been known for decades that the skin barrier is impaired in atopic dermatitis and we need to moisturize, there's very little comparative studies. And there's really no clear information on what's better and what's not. So the formulations, interestingly, seem to be studied a little bit more than the active [00:50:00] ingredients, and there is evidence to suggest that ointments and oils are a lot better as moisturizers, even though cosmetically, we might not like the feel of them or the appearance of them as much, but they're much more effective than lotions and creams. And in fact, in children, now there's some evidence to show that lotions, regularly in children, prone or known to be developing atopic dermatitis, may actually be detrimental rather than helpful.

So there's a lot of work happening, but the short answer to the question is no, we really don't know. And so it's, I think, you know, you can feel yourself, you've got dry skin, you put a moisturizer on it takes that dryness, that itchiness away. I'm not sure that I really see that rapid effect easily in any patients, because we don't tend to wash every day with our patients. But I think to follow the good principles that are being used in the human world and using the oils, QV, things like that after a bath or between baths and potentially some of our veterinary conditioners are really good we just don't have good evidence to know.

**Kellie Thomas:** [00:51:16] I wanted to put a couple of scenarios to you for some advice.

And these might be things that practitioners could be seeing in practice. The first one is you've got a patient that's come in for a regular elective procedure, such as a female spey, and the nurse notices while she's clipping and prepping that there's papules, erythema all over the belly. What is the best next step? Is it safe to go ahead with that elective spey for that cranky owner that needs to pick up the dog at 2:00 PM and not a minute later, is it best to sample? Is it best to leave it for today? What would you advise practitioners in that scenario?

[00:52:00] **Linda Vogelnest:** [00:52:00] Yeah, look, the optimal would not be to be doing elective surgery on diseased skin. So if there is active pyoderma, you're probably best to delay the procedure. And at the very least talk to the owners and say, look, there is a little bit of risk that if something doesn't go well in here, we could have infection related to the increased bacteria that are very likely to be there on the skin surface. And just the prep of that will solve the problem temporarily while the surgery's happening.

But it won't solve the problems for the next few days while the healing is, is starting. So ideally it's not to proceed with any elective surgical procedure until your pyoderma has settled.

**Kellie Thomas:** [00:52:51] Second scenario is superficial pyoderma, and maybe deep pyoderma, recurring in a patient in which the underlying cause hasn't completely been elucidated and the client isn't necessarily willing to go for a referral or wanting to spend too much money on workup.

And you've identified the Pseudomonas aeruginosa from your most recent investigations. What is the best case scenario for this patient? So, you know, you're seeing them three or four times a year with superficial pyoderma flares, you know, you probably need to get to the bottom of what's going on underneath it. You're looking at a long course of a highly

rated important anti-microbials such as enrofloxacin or one of the higher generation cephalosporins. Alternatively, you could be doing parenteral gentamycin, but that's got its own complications. What do we do in these cases? What's the thought process you go through?

**Linda Vogelnest:** [00:53:51] Well, my first question is, is it really superficial pyoderma associated with Pseudomonas? Because that would be very rare. [00:54:00] And you might culture that on the surface from a swab. But if you didn't see lots of bacteria or rods associated with neutrophils on your sample, then it's probably just a Pseudomonas that happened to be there and was easily cultured.

So that's always my first question. Deep pyoderma can be different and you certainly can have rods including Pseudomonas involved, but even then, it's relatively rare, and I would want to confirm that with a tissue culture before I would think about doing any extended antibiotics for a Pseudomonas in skin disease.

That's step one. If you were convinced, and you had good evidence to show that not just on culture, but on cytology, you had rods consistent with Pseudomonas and it was superficial pyoderma. I would probably not be reaching for systemic antibiotics. I'd be probably doing topical therapy. And your chlorhexidine, iovone, bathing twice a week with chlorhexadine shampoo to clean away things and dealing with the underlying problem would be all you'd need to do.

Deep pyoderma you would need is only time with skin that you would consider doing systemic, well, need to do, systemic antibiotics for a Pseudomonas. And then you would want to have culture and sensitivity testing.

**Kellie Thomas:** [00:55:22] And that would be like the example you spoke about before, where that culture should be based on a biopsy sample?

**Linda Vogelnest:** [00:55:28] Yes.

**Kellie Thomas:** [00:55:29] Excellent. Linda, it's been such a pleasure to talk to you before I let you go for the day. I wondered if there's anything else that you'd like to communicate to veterinarians out there dealing with dermatological cases on a daily basis in this age of increasing resistance or just in general.

**Linda Vogelnest:** [00:55:47] Yeah, look, I think it's, it's something I'm very passionate about because we can make skin disease easier for ourselves with some simple basics. And one is [00:56:00] thinking about your patterns and your routines and what you do when you see a skin case. And I have patterns that I follow too. And sometimes, you know, visiting people or my interns will say, why are you doing that? And you stop and you think about, okay, why am I doing that?

So it's good to always stop and think about what your routines are and make sure that your routines are evidence-based and useful. So that's step one. And, and question like, we've talked about, the use of antibiotics, but also thinking about when you're treating cases that are recurrent, taking that pause, stopping and thinking, 'Right, I've seen you three or four times in a year and that's enough that we need another consult to make a long-term plan.' So, so I think, I think that's what I, I encourage everyone to do. The cytology is so helpful to

guide you with secondary infections, but it's also, we need patterns. We need things that we do, but to stop and question what you do with your skin cases and your general routine of how you start to manage them.

And a lot of them become, as soon as you've got time to make a plan and start looking at what you're doing, it helps you achieve a lot more in skin.

**Kellie Thomas:** [00:57:16] Excellent advice, Linda, thank you again, really grateful for your time today. I know everybody who listens to this podcast will be as well. There'll be people madly trying to take mental notes while they're out for a jog and probably relistening, which is fantastic.

So thank you very much. Now don't forget. you can catch Linda's video of a sticky tape prep on our website, which I'll link to in the notes and I'll, I better let you go, see to your budgies!

**Linda Vogelnest:** [00:57:51] (Laughs) Thank you, all good.