Tris-NAC®

Clinical cases managed with the application of Tris-NAC® alone or together with

ICF
Evolution of Knowledge


Tris-NAC®
Soluzione sterile
Sterile solution
TAMPONE TRIS-EDTA
+ N-Acetil Cisteina (NAC)
ad elevata forza ionica
per cani e gatti
TRIS-EDTA BUFFER
+ N-Acetylcysteine (NAC)
with high ionic strength
for dogs and cats
120 ml
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BIOFILM: WHAT IS IT AND WHERE CAN IT BE FOUND?

Biofilm is an aggregate of bacterial cells embedded in an extracellular matrix of polymeric substances that protects them from antibiotics, chemicals and an organism's immune system. This creates resistance to antibiotic therapy: in fact, biofilm bacteria can be 100-1,000 times more resistant than "free" ones.

Some bacterial species can produce biofilms, including *Staphylococcus pseudintermedius, Pseudomonas aeruginosa* (in particular during otitis), *Proteus Mirabilis* and *Escherichia coli*. However, in regard to yeasts, *Malassezia Pachydermatis* can produce biofilms, in particular during seborrheic dermatitis in dogs. Biofilms are ubiquitous and can be formed on virtually any surface of the body *(S. Paterson, 2018)*.

The formation of biofilm produces effects on a whole series of infections and diseases, including chronic wounds that do not heal, relapsing pyoderma, chronic purulent otitis, infections of implants and prostheses (G. Ghibaudo, 2018). Allergic dermatopathies predispose dogs and cats to skin infections, including microbial overgrowth (both bacterial and from *Malassezia*) and pyoderma. Microbial overgrowth is typically characterized by the presence of erythema, exudation and itching in the absence of papules and pustules; it is normally observed between the plantar pads and the fingers, in correspondence with perivulvar and perianal areas, ventral surface of the abdomen, groin, axillae, pinnae of the ears and skin folds. *(David H. Lloyd, 2009).*

AN INNOVATIVE, SAFE AND EFFECTIVE RESPONSE: Tris-NAC®

The most innovative support to manage biofilm, both in the prevention and destruction of already mature biofilm, is topical support that provides not only the use of effective substances, but combinations of these substances in order to synergize their activity.

> Tris-EDTA (Etilen Diammin Tetracetic Acid):
with bactericidal activity on non-growing bacteria in the biofilm (Ciofu et al, 2017); combined with Trometamine (Tris) damages the walls of bacterial cells and increases penetration inside the bacterial membranes; it is well tolerated and non-ototoxic; acts in synergy with chlorhexidine. (Guardabassi et al, 2010).

> NAC (N-Acetyl Cysteine):
N-acetylated derivative of the amino acid cysteine has a mucolytic effect, and therefore it destroys the production of exopolysaccharides by weakening the EPS matrix. It has recently been used in eight clinical trials as an adjuvant treatment to destroy mature biofilm and prevent its formation and has demonstrated excellent safety and efficacy levels.

Tris-NAC®: The combination of Tris-EDTA and NAC on the skin and in the ear, before the application of topical products, such as chlorhexidine, antibiotics or synthetic antimicrobial peptides allows an increase in the permeability of mature biofilm, and consequently, its disintegration, effectively supporting the overcoming of the problem of resistance to the classic antibacterial therapeutic approach.

USE:

On the skin: abundantly impregnate a sterile gauze with Tris-NAC® and place it on the affected area for at least 3-5 minutes. In the case of larger areas, spray until complete imbibition. Do not rinse or dry. Apply the topical product after 20-30 minutes.
In the ear canal: apply 1 to 3 ml of product, massage at the base of the ear and remove any excess with gauze wrapped around the finger. Apply the topical product after 30 minutes. In both cases, repeat the treatment as needed or as instructed by your veterinarian.

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• WOUNDS/INJURIES THAT DON'T HEAL

CASE A - Dr. Lorenzo Giacomeli, Dr. Marta Mellea, Dr. Sara Signore, Calci (Pisa)

REPORT: DOG - Argentinian Dogo - Female - 6 years old
ANAMNESIS: Post-surgical wound from amputation of a finger that does not heal.
PROCEDURE FOLLOWED: Tris-NAC® + oral antibiotic for 10 days.

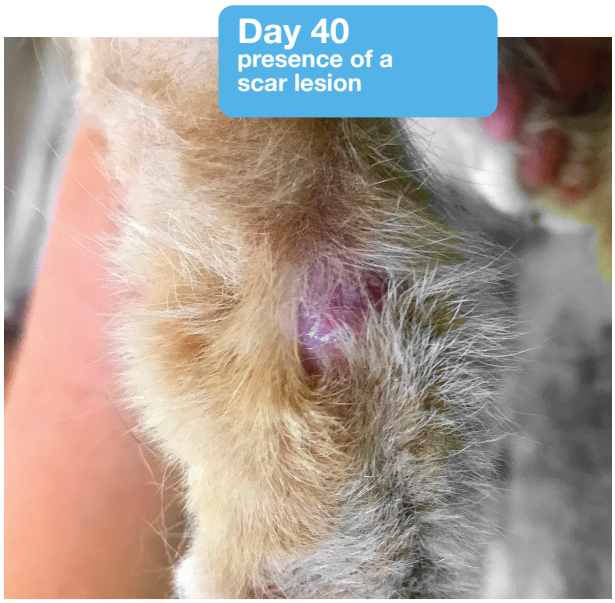
Day 0

Day 4

Day 10

CASE B - Dr. Antonietta Bevilacqua – Vedano al Lambro (MB)

REPORT: CAT – European Shorthair – Neutered Male - 8 years old.
ANAMNESIS: Deep ulcerative lesion at the joint of the tarsus, starting from the caudal surface with extension to the cranial one. After histological examination burn injury was suspected and the cat was treated with systemic antibiotic and steroids without any improvement.
PROCEDURE FOLLOWED: Cephalexin BID for 10 days; Tris-NAC® and Zeep SID for 40 days.



CASE C - Dr. Silvia Piermatti, Foligno (Perugia)

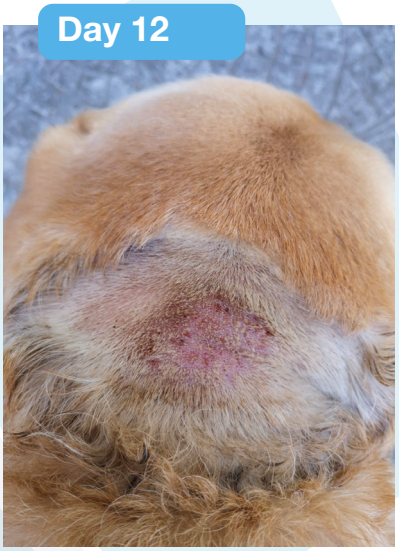
REPORT: DOG - Labrador - Male
HISTORY: Skin injury in the dorsal region of the neck from trauma caused by rubbing
PROCEDURE FOLLOWED: Amoxicillin + clavulanic acid and Peptivet® foam BID for 5 days; followed only by Peptivet® foam + Tris-NAC® until resolution.

Day 0

Day 5

Day 9

Day 12



CASE D - Dr. Ronald Levine, Roveredo in Piano (Pordenone)

REPORT: CAT - European shorthair - Sterilized female - 2 years old
HISTORY: Cat that lives indoors and outdoors. Occurrence of a skin wound extending from the foot to the tarsus with exposure of the tendons and muscles. At RX it shows distal femoral epiphyseal detachment, which was surgically resolved at the clinic.
PROCEDURE FOLLOWED: The skin wound was managed with second healing, applying Tris-NAC® + lactic ferments in powder BID.

Day 0

Day 6

Day 13

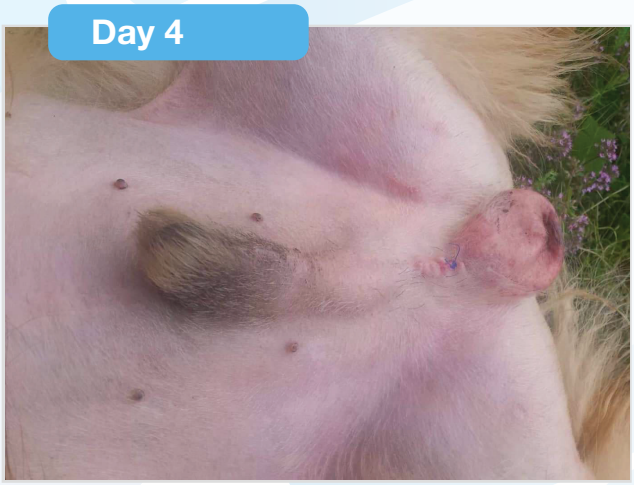
Day 30

CASE E - Dr. Elena Sorini, Trieste

REPORT: Half-breed Dog - Male - 9 years old
HISTORY: Kennel dog with testicular seroma.
PROCEDURE FOLLOWED: Tris-NAC® + vitamin E from the first day and Cephalexin BID from the 12th day.

Day 0

Day 4



Day 12

Day 17

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• RECURRENT PYODERMA/SUPPURATIVE FLOGOSIS

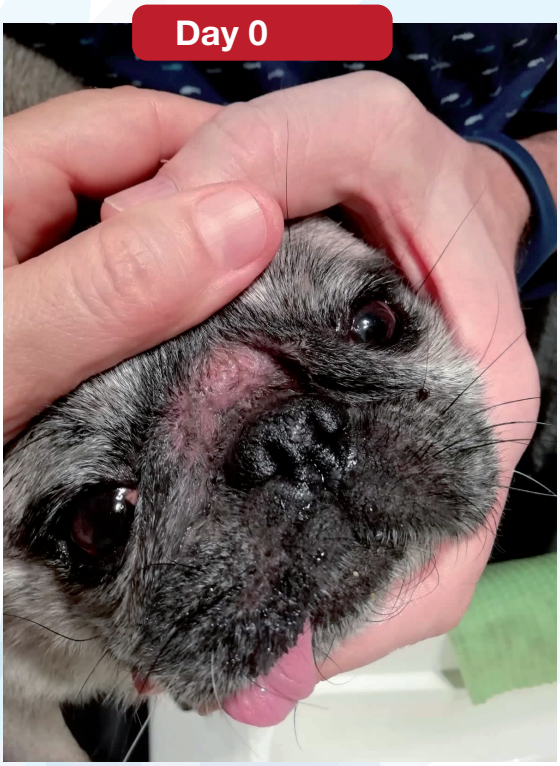
CASE 1 - Dr. Luca Ferrante – Parma (PR)

REPORT: DOG – Rottweiler – Male – 5 years old
ANAMNESIS: Hot spot on the temporo-mandibular area, previously treated unsuccessfully with antibiotic therapy (amoxicillin and clavulanic acid), steroids and local disinfection.
PROCEDURE FOLLOWED:
- Cephalexin + Tris-NAC® for 12 days with almost complete resolution (see photo at day 12th).
- From day 12th: Linkskin® spray BID for 1 week, in order to rebalance the skin microbiota, with complete resolution (see photo at day 18th).

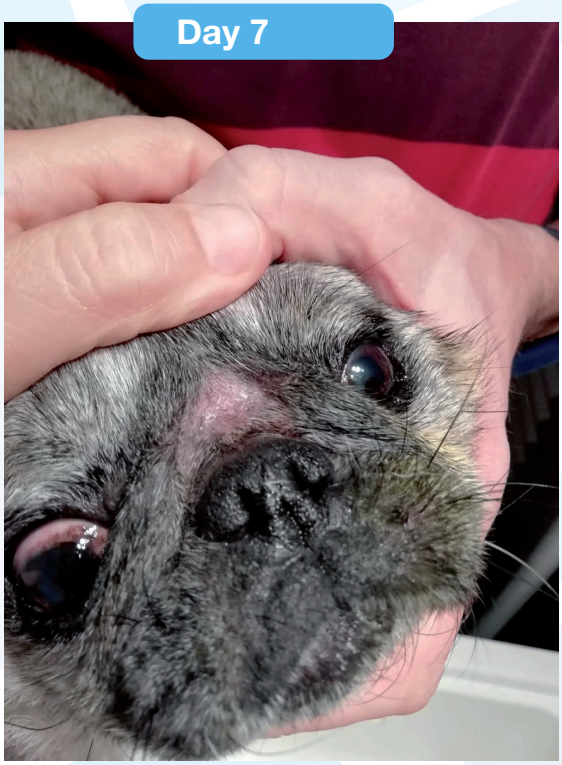
CASE 2 Dr. Marcello Iotti – Campogalliano (MO)

REPORT: DOG - Pug - Female - 7 years old.
ANAMNESIS: Relapsing exudative dermatitis of the skin folds.
PROCEDURE FOLLOWED: Tris-NAC® BID for 1 week.

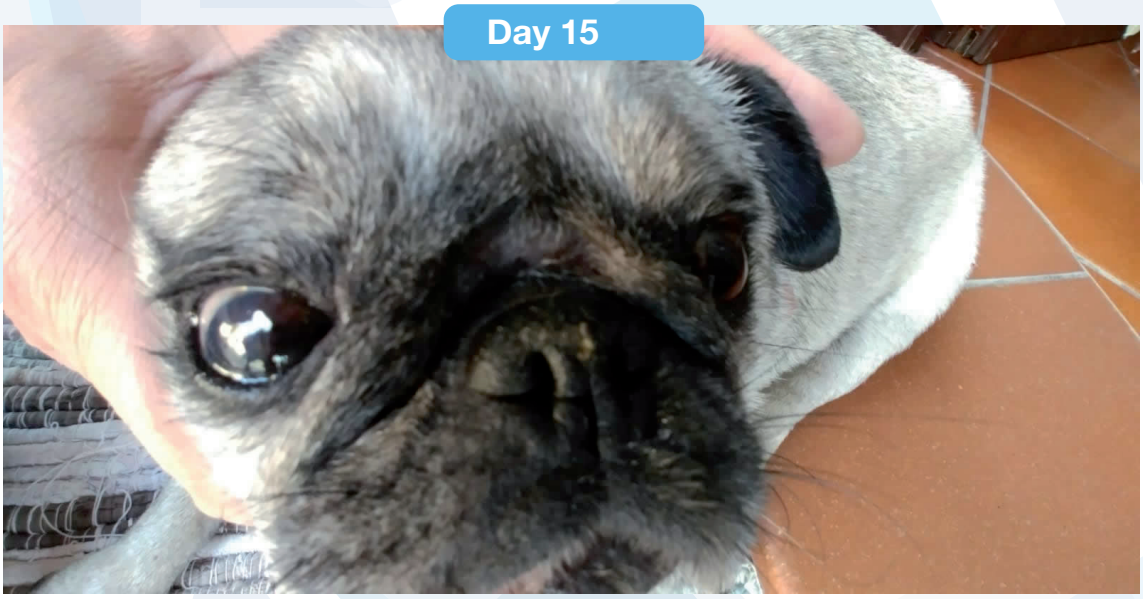
Day 0



Day 7



Day 15



CASE 3 - Dr Maurizio-Arcindo Lavecchia, Fiorenzuola d'Arda (Piacenza)

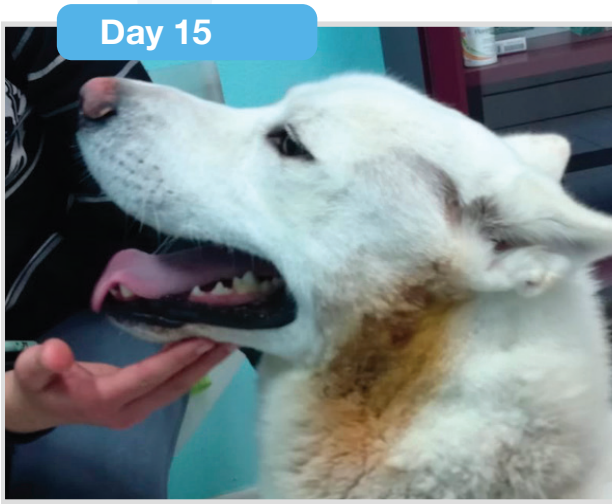
REPORT: DOG Husky - Male - 7 years old
ANAMNESIS: Exudative and very painful dermatitis with suppuration.
PROCEDURE FOLLOWED: Deep curettage after the application of an anaesthetic and then topical therapy with Tris-NAC® SID before the application of a local antibiotic.

Day 0

Day 4

Day 8

Day 15



(resolution with the total absence of pain, even with intense manual rubbing)

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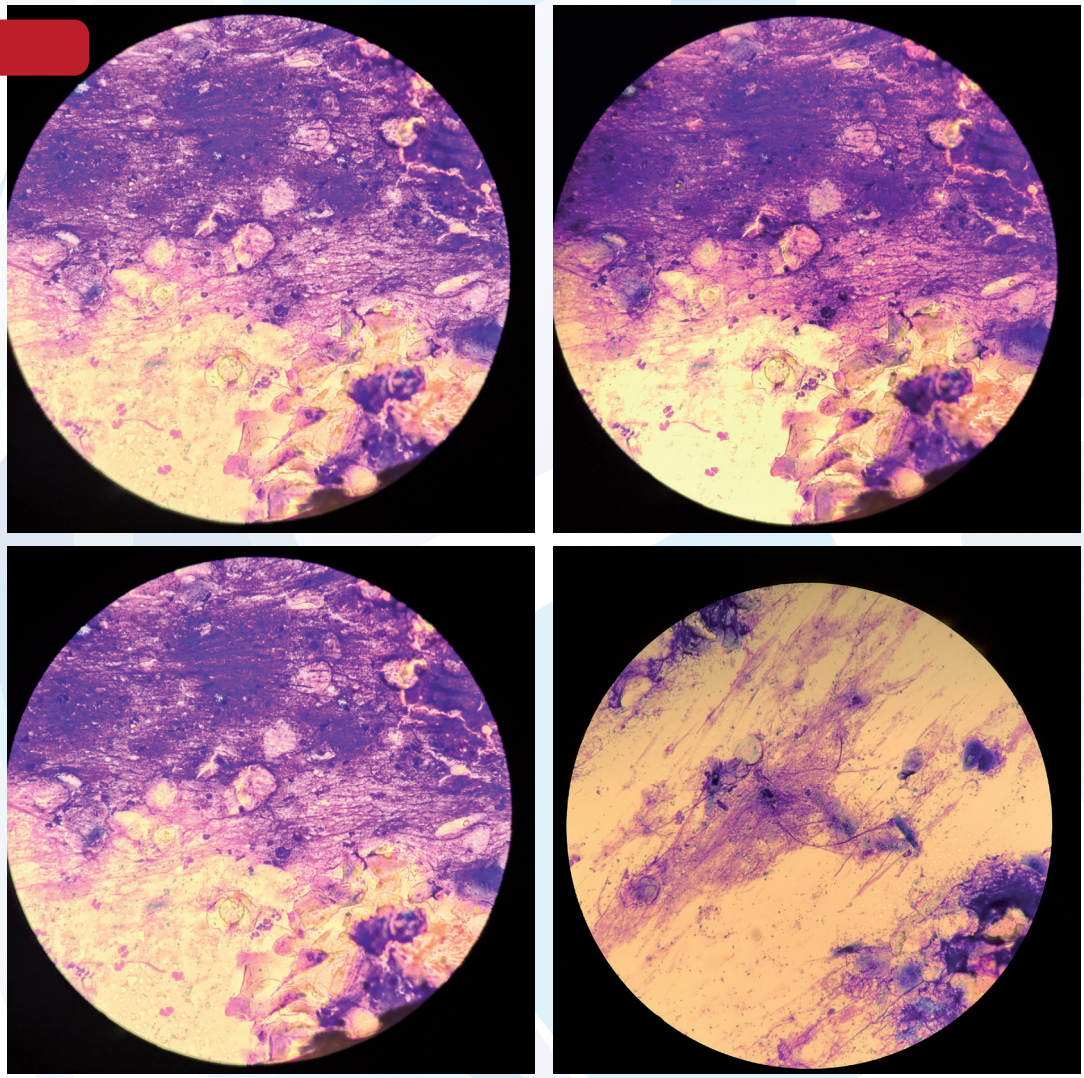
• OTITIS

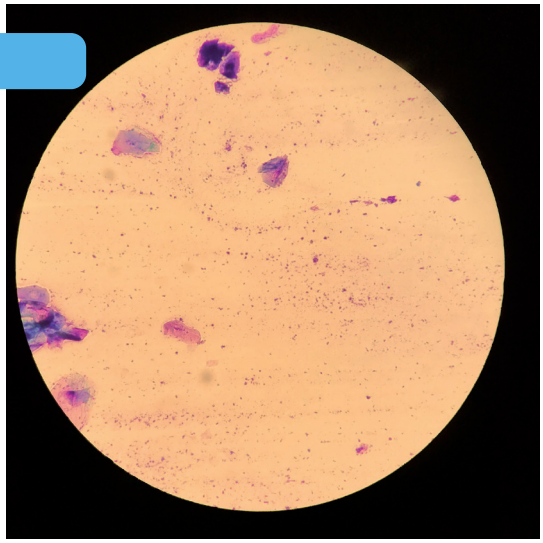
CASE 1 - Dr. Luciani Luca – Cattolica (RN)

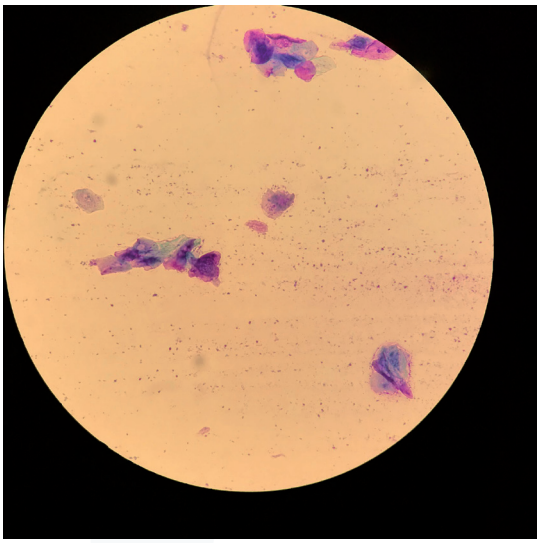
REPORT: Half-breed dog - Female - 8 years old
ANAMNESIS: Bilateral purulent otitis externa. On cytological examination, a notable presence of biofilm is found together with neutrophils, bacteria and superficial cells.
PROCEDURE FOLLOWED: Awaiting results of bacteriological exam, Tris-NAC® BID is administered for 1 week.
After 1 week, cytological examination showed the disappearance of biofilm.

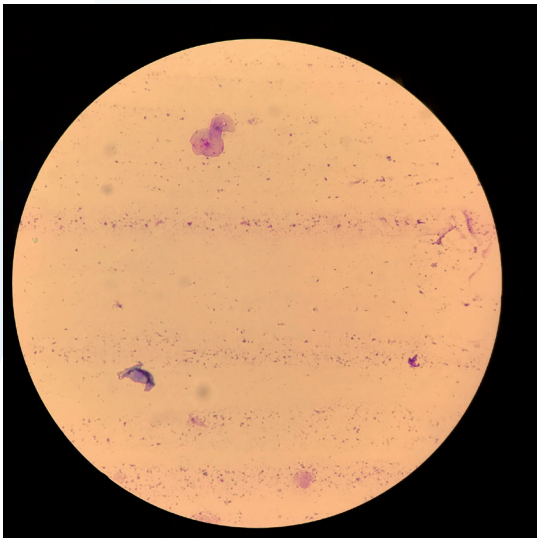
T0



T7







THANKS THE VETERINARIANS FOR THEIR VALUABLE COLLABORATION IN THE PHOTOGRAPHIC AND ANAMNESTIC

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