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Concordance of Dermal Needle Aspiration Culture (DNAc) with Microbiological Agents Isolated in Sterile Fluids

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BACKGROUND

Musculoskeletal infections are challenging due to clinical severity and the difficulty of precise microbiological isolation, which is crucial for therapeutic success. While the diagnostic "gold standard" typically involves invasive surgical procedures to collect tissue or biological samples, Dermal Needle Aspiration Culture (DNAc) emerges as a strategic, easy-to-perform tool that can aid in isolating the etiologic agent.

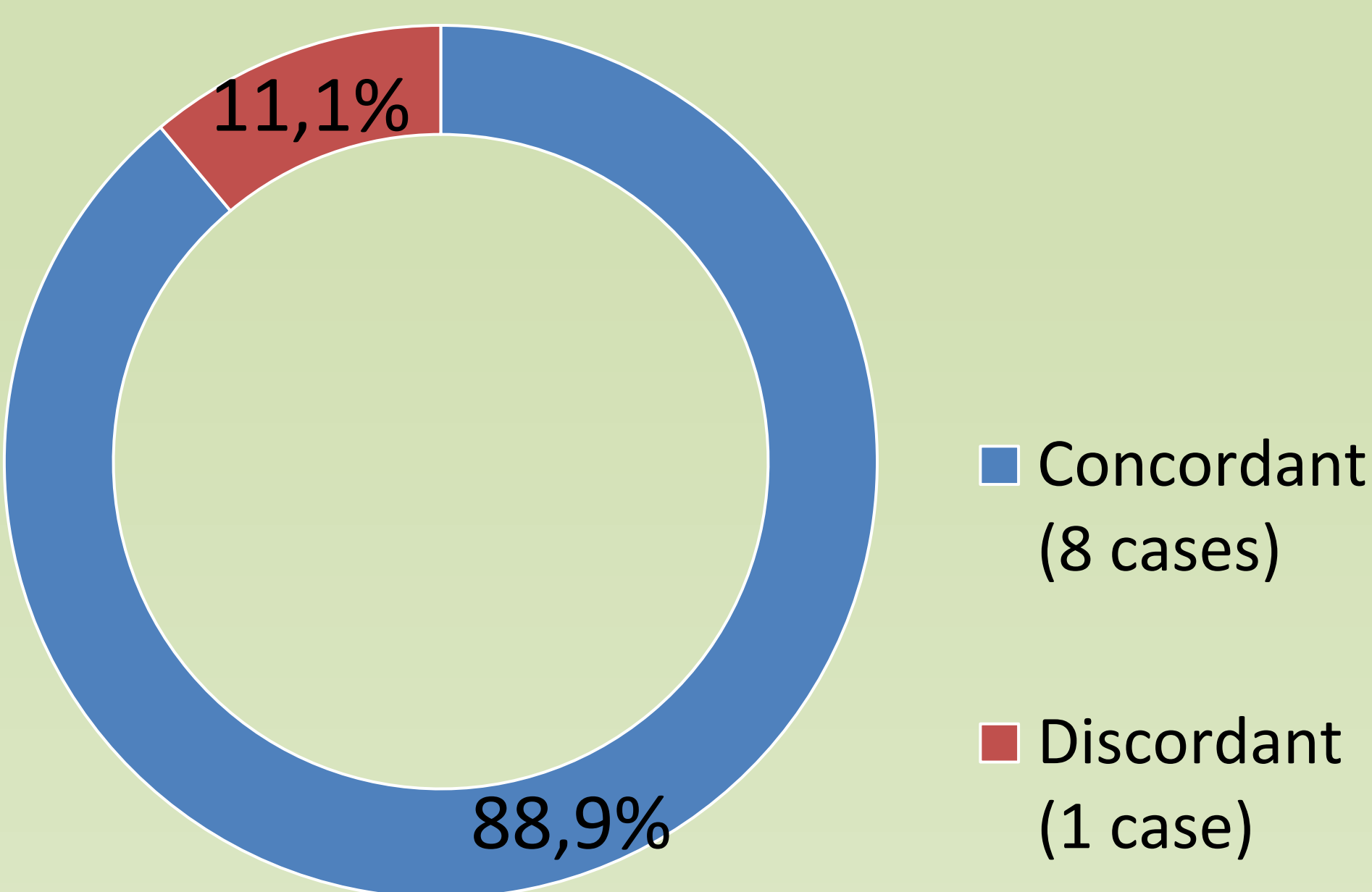
METHODS

A retrospective and prospective case report study involving nine patients previously approved by the institutional IRB. All patients underwent DNAc, with samples stored in culture flasks and processed using an automated method.

RESULTS

The study sample had a mean age of 60.7 years, with a male predominance (55.6%). The most frequent comorbidities were Diabetes Mellitus (DM) and Systemic Arterial Hypertension (SAH), identified in 4 patients each, followed by neoplasms (2 patients). Regarding clinical profiles, Fracture-Related Infection (FRI) was the most predominant diagnosis (3 cases), followed by Infected Diabetic Foot and Skin and Soft Tissue Infection (SSTI), with 2 cases each. Microbiological analysis showed that the most frequent agents isolated via DNAc were *Klebsiella pneumoniae*, *Staphylococcus aureus*, and *Pseudomonas aeruginosa*. Sterile fluid cultures showed greater etiologic diversity, including *Stenotrophomonas maltophilia*, *Acinetobacter baumannii*, and coagulase-negative staphylococci. The microbiological concordance rate (isolation of at least one common agent) was 88.9% (8 out of 9 cases), with only 11.1% total discordance between the methods.

Microbiological Concordance (DNAc) vs Sterile Fluid Culture



Graphic 1. Concordance of isolated agentes. An impressive 88.9% microbiological concordance (isolation of at least one common agent) was observed with only 11.1% total discordance.

AIM

To analyze the concordance between positive cultures obtained by DNAc and biological sterile samples in a specific patient population.

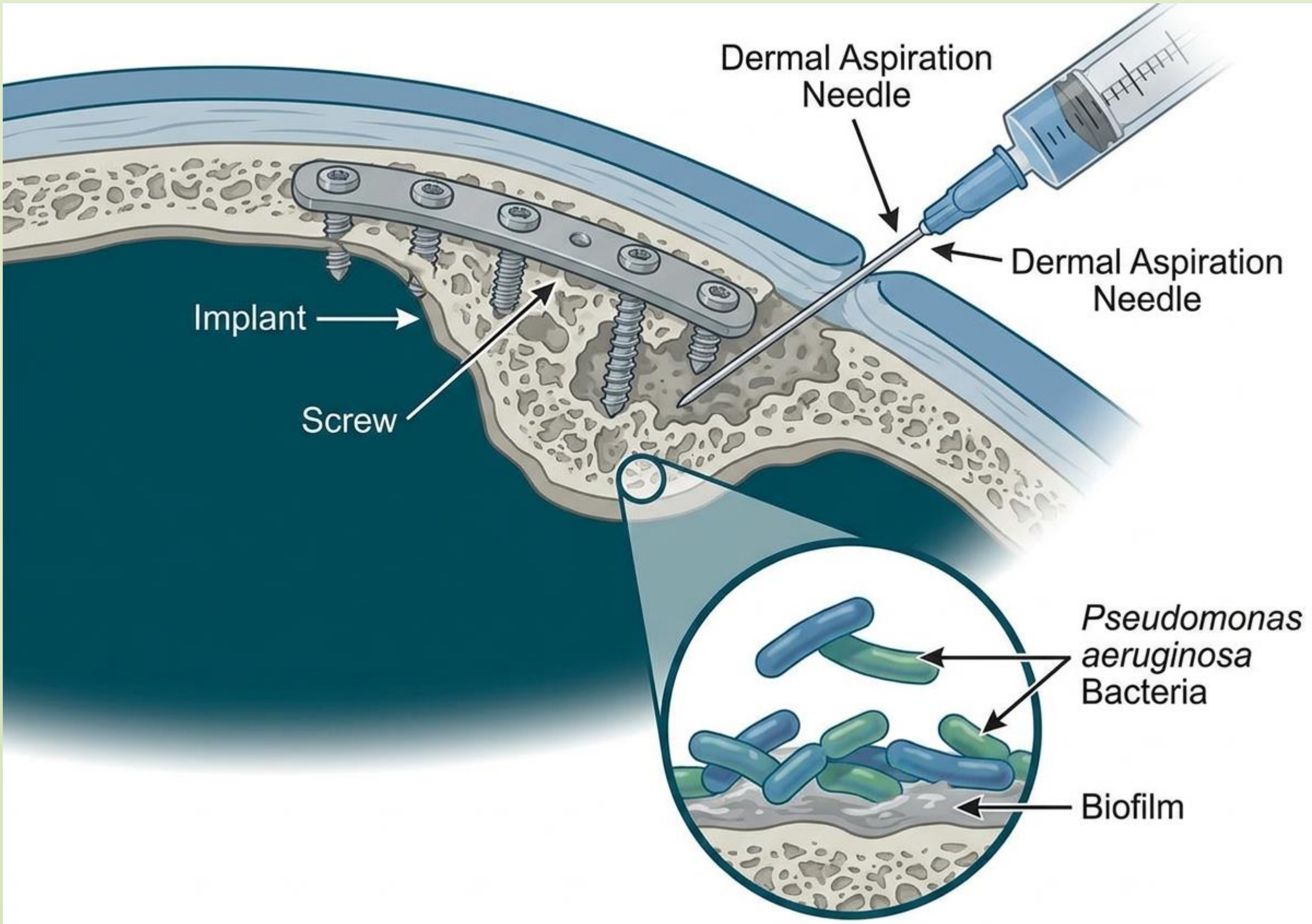
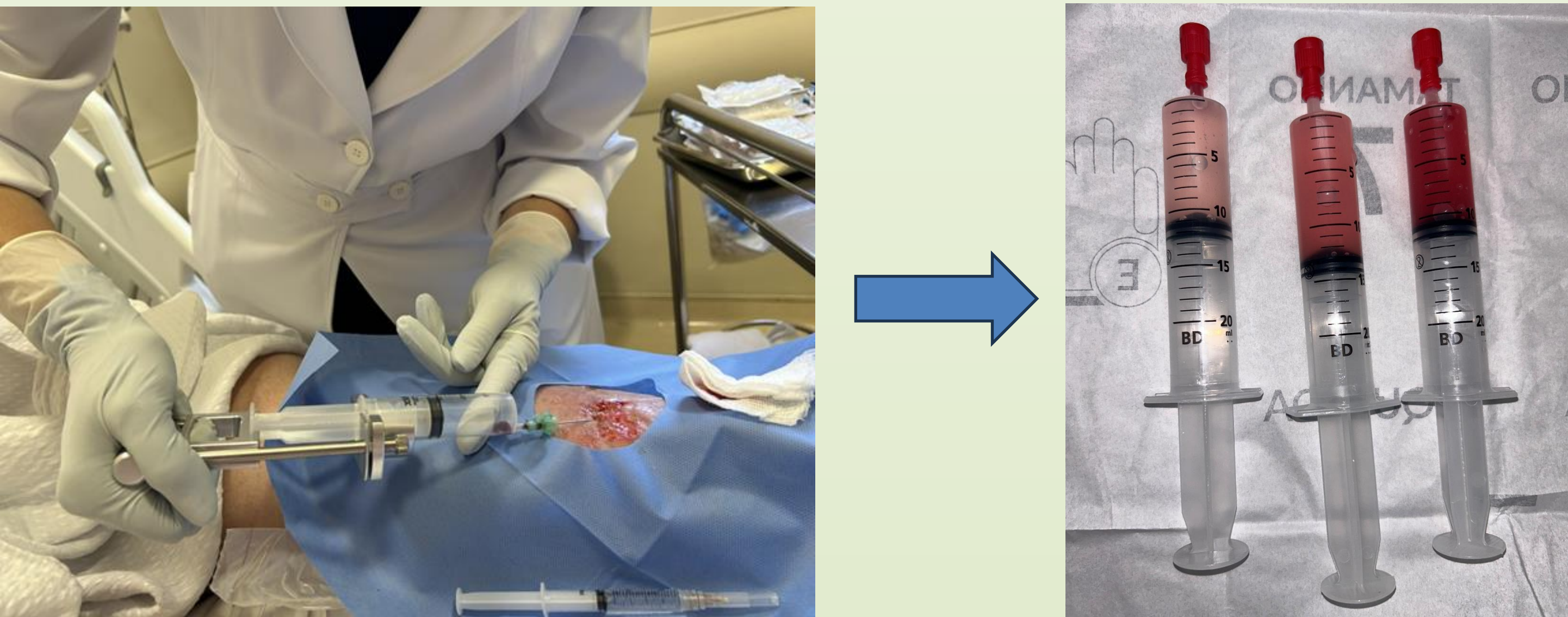


Figure 1. Wound management strategy for DNA culture and the material collected. Source: image bank of the researchers' wound management strategy.

CONCLUSIONS

In a series of cases DNAc showed high microbiological concordance with sterile fluid cultures, suggesting a possible less invasive diagnostic tool for musculoskeletal infections.

REFERENCES

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