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CLINICAL AND BACTERIOLOGICAL INVESTIGATIONS OF CUTANEOUS ABSCESSES IN CAMELS IN ASSIUT-GOVERNORATE, EGYPT.

(With 2 Figures)

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فحوصات إكلينيكية وبكتريولوجية للخراريج الجلدية في الجمال في محافظة أسيوط-مصر

حلمي صديق على ، مراد إسماعيل مراد ، عبد الراضي ثابت

خلال فصل الصيف سنة ٢٠٠٠ تم عمل الفحوصات الإكلينيكية لعـــدد ٤٥٠ جمـل أثنـاء التدريب الصيفي لطلاب الطب البيطري في بعض قرى محافظة أسـيوط. أظـهرت نتـائج الفحوصات الإكلينيكية بأن عدد ٢٠ جمل كانت مصابة بخراريج جلدية في المنطقة السـفلي للفك السفلي وأيضا على المنطقة الظهرية لمنطقة الفخذ في الأرجل الخلفيـة. الفحوصـات البكتريولوجية مدعمة بالفحوصات البيوكيميائية والحقن في الأرانب للعينات التي أخذت مـن الخراريج أسفل الفك السفلي أفادت بأن المسببات البكتريولوجية هـي ميكـروب الكورينـى الصديدي بنسبة (٦٦,٦٧%) وكان مشترك مع ميكروب العنقودي الذهبي والسـبحي بنسـبة (٣٣.٣٣%) بينما المسببات البكتريولوجية للخراريج الجلدية للأرجل الخلفية كان ميكـروب السل الكاذب بنسبة (٦٤,٢٩%) وكان مشترك مع ميكروبى الكورينى الصديدي وميكـروب العنقودي الذهبي والسبحي بنسبة (٣٥,٧١%). نتائج هذا البحث أظهرت بأن نسبة الإصابـة الجلدية في الجمال كانت ٤,٤٤%.

SUMMARY

During The summer season (2000), 450 camels were examined clinically during the training of veterinary students in some villages in Assiut-Governorate. The clinical examinations of these camels showed that twenty camels were infected with cutaneous-abscesses in the lower part of the mandible and dorsal surface of thigh of the hind legs. Results of the bacteriological examinations supported with biochemical tests and laboratory animal inoculation revealed that the bacteriological causes of

the skin abscesses in the lower part of the mandible were *Corynebacterium pyogenes* (66,67%) and associated with *Staphylococcus auraus* and *Streptococcus* SPP in (33,33%), while, the bacteriological causes of the skin abscesses of the hind legs were *Corynebacterium pseudotuberculosis* (64.29%) and associated with *Corynebacterium pyogenes*, *Staphylococcus auraus* and *Streptococcus SPP* (35,71%). The obtained results in the present study showed that the percentage of cutaneous infection in camels was 4,44%.

Key words: *Skin abscesses in camels*

INTRODUCTION

Camels are considered as one of the most important animals for milk and meat production for nomadic peoples in the desert areas in Egypt.

In Assiut Governorate, Ali, (1999) could isolate *Corynebacterium pseudotuberculosis* from twenty-two cold abscesses in the neck, shoulder and hind legs of camels. Nashed and Mahmoud (1986) in the same Governorate isolated an organism resembling *Corynebacterium pseudotuberculosis* from ten cases from lymph nodes of camels. Ismail, et al. (1985) reported an outbreak of *Corynebacterium pseudotuberculosis* in 21 dromedaries, cattle and buffaloes in El-Sharkia-Governorate. On the other hand, as early as (1934) Carpano could isolate Corynebacterium like organism from cases of ulcerative dermatitis in cattle, buffaloes and camels. El-Afifi, et al. (1954) isolated *Corynebacterium pyogenes* from tuberculosis-like lesions in lymph nodes of camels. Domenech, et al. (1977) examined 59 cases of Ethiopian camels showing lesions resembling caseous lymphadenitis of small ruminants and could isolate *Streptococci*, *Corynebacterium pseudotuberculosis*, *Staphylococcus SPP.* and *Corynebacterium pyogenes* from the infected camels.

The main purpose of this study was the isolation and identification of the actual causes of the cutaneous abscesses in infected camels.

MATERIAL and METHODS

Animals:

During the summer season, (2000), 450 camels of both sexes and their ages ranged from 5-10 years were examined during the summer training of veterinary students in different villages included, Sawalem Abnoub, Kom-Esphahat and El-Azizia. Twenty of these camels were suffering from cutaneous abscesses in the lower part of the mandible or the hind-legs.

Materials:

Six pus samples were collected from closed skin abscesses at the lower part of the mandible and fourteen pus samples were taken-from unopened skin abscesses of the hind-legs, of the infected camels. Each closed skin abscess was surgically incised and pus material was put into a sterile container and sent to the laboratory as soon as possible under complete aseptic conditions.

Methods:

The collected pus samples were directly inoculated into tubes containing brain heart infusion broth for 24 hours at 37°C.

Subcultures were made on two sets of sheep blood agar media. One was put in anaerobic jar (Mcgntosh) with 10% Co_2 and incubated at 37°C for 2-5 days. The other was incubated aerobically at 37°C for 2-5 days. Growth colonies were picked up and subjected to morphological and biochemical identifications as recommended by Cruickshank, et al. (1975) and Carter, (1986). The pus samples were also cultured on sabouraud's dextrose agar medium supplemented with chloramphenicol for mycologicol examination.

Pathogenicity test:

Each purified isolated strain having morphological, cultural and biochemical characters was subjected to pathogenicity test. One ml of 24 hours broth culture was injected S/C in a rabbit and another rabbit was inoculated S/C by the same dose of sterile broth as a control. The two rabbits were put under observation. Culture on broth was made from pus material of any abscess shown by the inoculated rabbits and subcultured on sheep blood agar media for reidentification.

RESULTS

Clinical findings:

Twenty, (4.44%) out of 450 examined camels, showed cutaneous abscesses on the lower part of the mandible and on the dorsal surface of the thigh of the hind-legs. Skin-abscesses on the lower part of the mandible were semi-circular in shape like lemon in size, (Fig.1) approximately 5-7 cm. in diameter, cold, painless and firm. Ruptured abscesses contained thick, sticky yellow-whitish creamy pus tinged with blood. The skin abscesses of the hind-legs were completely circular in shape and large in size like large orange, approximately 15-20cm. in diameter, cold, painless and firm, (Fig.2). Ruptured abscesses contained one litter of whitish, thick creamy pus tinged with blood. The body temperature of the affected cases were 37.8°C, the pulse and respiratory rates were within the normal range.

Bacteriological analysis:

Six closed skin abscesses at the lower part of the mandible of infected camels were, sampled and cultured. Results of bacteriological examination yielded 4 (66.67%) strains of *Corynebacterium pyogenes* alone and 2 (33.33%) were *Corynebacterium pyogenes* associated with *Staphylococcus auraus* and *streptococcus SPP*.

The characteristic features of *Corynebacterium pyogenes* were as such: grow well anaerobically within 2 days at 37°C, colonies were grey in colour and produced complete B-haemolysis, the organism was gram-positive short bacilli, arranged in palisade manner and non-motile. The biochemical tests showed that catalase, indol, urease and nitrate reduction tests were negative while the gelatin liquefaction and milk coagulation were positive.

Fourteen-closed skin abscesses on the dorsal surface of the thigh of the hind-legs of the infected camels were sampled and cultured. Results of bacteriological examination showed that 9 (64.29%) were *Corynebacteriun pseudotuberculosis* in a pure form and 5 (35.71%) were *Corynebacterium pseudotubereulosis* mixed with *Corynebacterium pyogenes*, *Staphylococcus auraus* or *Streptococcus* SPP. Colonies of the isolated strains of *Corynebaterium pseudotuberulosis* showed a narrow zone of haemolysis and there were no growth on MacConkey agar plates. The colonies consisted of Gram-positive, coryneform,

Pleomophoric in shape and arranged in palisades. The biochemical tests showed that catalase, urease, glucose and maltose tests were positive, while, all the other biochemical tests including nitrate reduction were negative.

Mycological analysis:

The mycological cultures of the twenty pus samples of the unopened skin abscesses of the lower part of the mandible and hind legs yielded no mycotic agents.

Pathogenicity test:

Rabbit inoculated with the isolated strains showed subcutaneous abscess within one week; control rabbits did not show any abscesses and *Corynebacterium pyogenes* and *Corynebacterium pseudotuberculosis* were re-isolated from the pus material of the abscessiated rabbits.

DISCUSSION

In the present study, various sized closed cutaneous abscesses were found particularly at the lower part of the mandible and on the dorsal surface of the thigh of the hind-Legs of the infected camels. The most clinical observations of the skin abscesses were its circular shape, cold, painless, firm and ranged in size from a lemon to a large orange without marked systemic inflammation. Similar clinical observations were reported in camels by Ismail, et al. (1990) and Ali, (1999) in Egypt. Domenech, et al. (1977) in Ethiopia and Schwartez, et al. (1982) in Kenya.

The results of the identification of the pure isolated strains showed that *Corynebacterium pyogenes* was the predominant organism which was responsible for skin abscesses at the lower part of the mandible of the infected camels either alone (66.67%) or mixed with *staphylococcus auraus and streptococcus spp.*(33.33%). Our results nearly agreed with those obtained by Domench, et al. (1977) who mentioned that *Corynebacterium pyogenes*, *Staphylococcus auraus* and *Streptococcus spp.* were the causative pathogenic bacteria of the skin abscesses in camels. It is also supported by Soliman, et al (1970) who stated that *Corynebacterium pyogenes* had been shown to produce soluble toxic and haemolytic activities and that its infection in farm

animals was rather of an endogenous origin as a result of a stimulus provoking a latent infection.

On the other hand, the Results of the identification of the isolated strains showed that *Corynebacterium pseudotuberculosis* was the predominant bacterial species responsible for the observed skin abscesses of the hind-legs of the infected camels since 64.29% of pus-samples yielded *Corynebacterium pseudotuberculosis* while *Corymebacterium pyogenes*, *Staphlococus auraus* and *Streptecocens spp* were associated in 35.71% of samples. The results agreed with those of many authors such as Domenech, et al. (1977) in Ethiopia, Ismail, et al. (1990) and Ali, (1999) in Egypt.

The present study showed that the actual cause of the skin abscesses in camels was either *Corynebacterium pseudotuberculosis*, or *Corynebaterium pyogenes* alone or associated with *Staphylococurs auraus, and Streptococcus spp.* Augustine and Renshaw, (1982) reported that *Corymebacterium pseudotuberculosis* was soilborn infection since the organism could survive in soil for sometime. Murad, et al. (1999) mentioned that the external parasites such as ticks and mites would lead to severe itching and injuries of the head and legs of camels. Therefore skin-abscesses in camels may by attributed to rubbing of the animals against rough objects leading to skin abrasions which facilitate the enterance of the pyogenic organism present in the soil.

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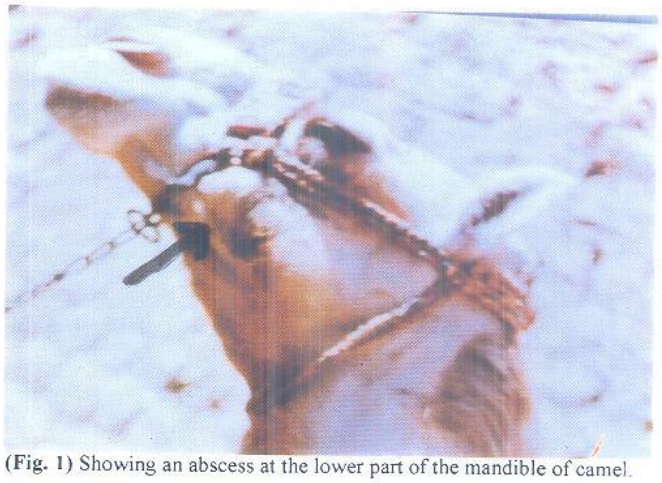
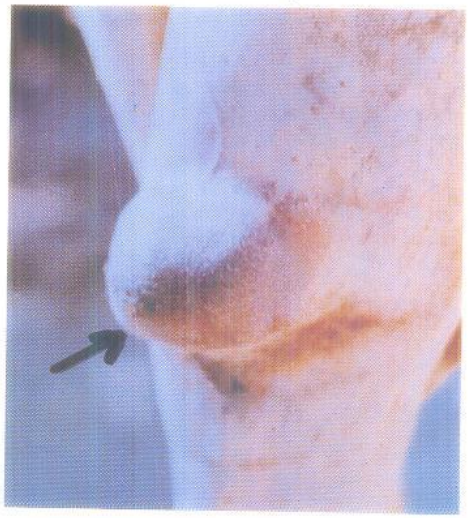


(Fig. 1) Showing an abscess at the lower part of the mandible of camel.



(Fig. 2) Showing an abscess on the dorsal surface of the thigh of hind-leg of camel.