

ملاحظات عن اصابات جلدية متكررة سببها الميكروب العنقودي الضارى

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المخلص

- ١ - انتشرت الاصابة فى قطع اغانم رحمانى بمنطقة السرو حيث تركزت الاصابة باسفل الذليل والمناعم ومؤخرة الضرع ولم يسبب المرض نفوقا بالمره .
- ٢ - اشتبه فى هذه الحالات على انها اصابة بالجدرى او الالتهاب الفمى النفطى واتخذت احتياطات حيث حصن القطيع ثلاث مرات للجدرى والفمى النفطى بدون نتيجة واستمرت الحالات فى الظهور .
- ٣ - عولجت تلك الحالات موضعيا واخذت المضادات الحيوية المختلفة بطريق الحقن وكان الشفاء ظاهريا ولدد قصيرة تعود الحالة لما كانت عليه قبل العلاج .
- ٤ - اخذت وسادات من افراز تلك الاصابات وكذلك من لبن الامهات المصابة وتم عزل الميكروب العنقودى الضارى من تلك الوسادات وكذلك من اللبن .
- ٥ - ذكر فى البحث ان الميكروب العنقودى المعزول ربما ينتقل الى الانسان ولذلك يجب ذبح الحيوانات المصابة فى سلخاته عامة .

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FIELD OBSERVATIONS ON RECURRENT SKIN LESIONS IN SHEEP CAUSED BY STAPHYLOCOCCUS AUREUS

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SUMMARY

1. An outbreak of skin lesions caused by pathogenic staphylococci on a herd of sheep (local breed - Rahmani) was described.
2. The outbreak was first clinically mis-diagnosed as Pox or Contagious pustular dermatitis but after considering clinical differential diagnosis and after carrying out bacteriological investigation the epidemic proved to be recurrent skin lesions caused by staphylococci, & 19 pathogenic strains of *Staphylococcus aureus* were isolated from the lesions and milk of affected animals.
3. Most of the known antibiotics formerly used caused temporary improvement and relapses always occurred.
4. Some factors concerning the farm, the flock and the organism played a role in the spread of infection.
5. Some immunological considerations were illustrated as regard staphylococcal infection.
6. Staphylococci infection and its zoonotic role was referred to.

INTRODUCTION

The writers were called to investigate skin lesions in a flock of sheep (412 heads of a local breed "Rahmani" at El Serwe breeding Station near the Mediterranean Sea shore in Damietta province. Cases were firstly diagnosed on clinical features as pox or contagious pustular dermatitis. In spite of regular and repeated use of specific vaccines for the prevention of these two diseases, the epidemic manifested itself as reoccurring and raised skin vesicles varying in size from that of lentils, beans and some were confluent giving rise to bigger sizes. The lesions were in the form of local superficial vesicles in the external layers of the dermis. On squeezing the vesicles the exuded material was in the form of shreads of fibrin with some whitish exudate with no real pus. Around the vesicles there were no apparent inflammatory zones. In

the affected areas, one could observe various stages : some fresh vesicles some semihealed and others healed lesions. The healed parts were wrinkled as a result of cicaterization. The lesions were mainly on the skin of the inside of the tail, on the posterior side of the udder facing the inner side of the tail, and very few on the inner side of the hind limbs. These skin affections appeared in all the flock at different periods. Nevertheless, the animals looked normal in all respects without mortalities, and they were tick free.

The signs were more common in sheep reaching maturity and those that were expecting or lactating mothers. Males were less affected and the lesions were milder. The genital organs were free from lesions in both sexes. Younger sheep about 1½ years old were not affected. Antibiotics were tried for about 2 ½ years without any curative effect. Relapses always occurred after apparent, improvement. Voles were prevalent in the area and it was believed that they were responsible for causing the wounds and abrasions by their bites on the hairless parts on the inner side of the tail at night.

MATERIALS AND METHODS

The vesicle material as well as the cream and deposit of milk were collected from infected ewes and inoculated on different media for bacteriological examinations. Post mortem examination was performed on three slaughtered animals; specimens were taken from the internal organs were similarly examined; blood smears were also made and stained.

The informations and keys provided by BBEED, MURRAY & SMITH (1957) provided a basis for identifying the isolates.

RESULTS

Bacteriological investigations carried out on the material collected revealed *staphylococci* with gave all the criteria of the pathogenic *Staphylococcus aureus* strains, being haemolytic, mannitol fermenters, coagulase positives, in addition to being extremely fatal to rabbits on inoculation. Nineteen strains were isolated (14 strains isolated from females, three isolates from males and two from milk. Smears made from the skin lesion showed the organism. On post-mortem examination no lesion was observed in any internal organ.

DISCUSSION

The clinical picture of this outbreak suggested that a variety of causal agents could be incriminated.

Viral diseases as sheep pox and contagious pustular dermatitis, ulcerative dermatosis, tick pyaemia and other bacterial diseases have to be considered in diagnosis of such lesions.

Bacteriological investigation which was carried out in this study revealed staphylococci which gave all the criteria of pathogenic *Staph. aureus*. WATSON (1965) stated that staphylococci infection spread disease in domesticated animals. DAVIS, DULBECCO, EISEN GINSBERG & WOOD (1970) mentioned that animals are constantly exposed to staphylococci especially skin and mucous membranes. FOGGI (1947) reported that most ewes in farms carry staphylococci. SAXENA & DHANDA (1962) Stated that 40% of sheep they examined were carrying pathogenic staphylococci.

By interpreting the environmental situation of the concerned flock it seems that some factors aided the spread of infection. These included firstly the salty nature of the land which is close to the Mediterranean Sea. Such places may facilitate the growth of staphylococci since the recovered organism can tolerate high concentration of salt (7.5—10%) as stated by BALLELY and SCOTT (1966). Voles which were found to be on the concerned farm probably played an important role as mechanical carriers of staphylococci and transmitting infection through their bites on inner side of tails of sheep. Also the persistence of the organism for about 2½ years made the infection to become endemic in the farm and the organism to be a constant contaminant. Moreover, the type of management and the crowding of sheep appear to influence the spread of the organism. DAVIS *et al.* (1970) reported recurrent superficial staphylococcal infections limited primarily to the skin occurring particularly during puberty in persons with hyperactive sebaceous glands and in individuals frequently in contact with oil, grease and other skin irritants. This is completely in conformity with the present cases in sheep as the infection was only confined to animals during or after puberty and in areas where grease, uterine, faecal discharges and sweat usually irritated the skin.

Concerning the organism itself it is known that staphylococci are among the hardest of all non-sporing bacteria. MERCHANT & PAKER (1969) stated that staphylococci are resistant to drying and sometimes they yield a sort of drug resistant mutants. This explains negative results obtained when antibiotics were applied for treatment of the flock. It seems that their effect gradually diminished as resistant mutants emerged among the staph. Strains indigenous in the herd. DAVIS *et al.* (1970) stated that most pathogenic staphylococci produce several toxins and enzymes that contribute in various

degrees to their pathogenicity and which greatly hinder both the defensive mechanism of the body and the proper effect of the drug. ROGERS & TOMPOSETT (1952) mentioned that pathogenic staphylococci are able to survive and multiply within leukocytes a matter makes treatment ineffective relapses more common and infection to be chronic. SOLTYS (1963) stated that recovery from spontaneous staphylococcal infection confers little or no protection against subsequent infection. MERCHANT AND PAKER (1969) also stressed on this item. Moreover DAVIS *et al.* (1970) stated that the presence of antibodies in the serum does not always protect against staphylococcal diseases. DERBYSHIRE (1962) concluded that staphylococcal infection cannot be controlled by the present immunological methods.

This outbreak in sheep is interesting from a public health point of view since all the isolates of staphylococci were coagulase positive which can survive within human leukocytes as reported by ROGER & TOMPOSETT (1962). MARRISON, FAIR. & KENNEDY (1961) stated that domestic animals may be a source of staphylococci which are pathogenic for man.

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