Antimicrobial susceptibility test on *staphylococcus hyicus* isolated from Iraqi camels

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Abstract

Eighteen types of antibiotics, which are commonly used in veterinary clinics, were used to determine the susceptibility (sensitivity) of *staphylococcus hyicus* isolated from cases of exudative epidermitis in Iraqi camels in order to suggest the best choice of treatment. Novobiocin was the most susceptible antibiotic against *staphylococcus hyicus* with 34 mm zone of inhibition on the Mueller-Hinton agar used in the test, Bacitracin was the second drug with 29 mm zone of inhibition, Vancomycine and Erythromycin get the third choice. In the same time; *staphylococcus hyicus* was resistant to Nalidixic acid, Cloxacillin, Nitrofuran, Amoxicillin and Ampicillin.

Introduction

In infectious disease therapy, an antibiotic is chosen with regard to sensitivity of the pathogen and cost of the drug. After samples are collected for culture, treatment may be started immediately based on clinical experiences, without actual knowledge of pathogen sensitivity. However, such information is critical if there is a subsequent lack of therapeutic response. Paper disks impregnated with various antibiotics are used to determine in vitro sensitivity of bacteria. The disks are placed on the surface of culture plates (blood agar, Mueller-Hinton agar) that have been streaked with the suspected pathogen. Inhibition of bacterial growth around a disk after 8-24 hr. of incubation at 37° indicates sensitivity to the particular antibiotic impregnated in the plates.(1)

Materials and methods

The antibiotic disks were bought from medical market type Bioanalyse (made in Germany). Mueller-Hinton agar (Hemidia- India) was prepared in the laboratory by dissolving 38 g in 1 liter distilled water and sterilized in the autoclave.

Antimicrobial susceptibility test

Petri dishes of Mueller Hinton agar, which is highly specialized for this test (2), inoculated with a swab from fresh and pure colony of *staphylococcus hyicus* to impregnate the antimicrobial discs, a group selected that have common uses in veterinary medicine, incubated for 22 hr. at 37° and then results had been read. Zone of inhibition measured in mm showed the highly susceptibility to Novobiocin as well as other less sensitive antibiotics.

Results

Antimicrobial susceptibility tests have been done to the bacteria isolated from the camels diagnosed with exudative epidermitis and showed the high susceptibility to Novabiocin as well as other antibiotics which come below in activity in table (1), Bacitracin, Vancomycin, Erythromycin respectively, and others. Fig (1) shows the Mueller Hinton agar used in this test as a sample.

Recent researches identify the *staphylococcus spp*. according to susceptibility test to their specific antibiotics; Novobiocin was the most active antibiotic against *S. hyicus* isolated from exudative epidemitis in pigs. (3).

Table (1): Results of Antimicrobial Susceptibility Test

	Antimicrobial discs	Concentration mcg	Zone of inhibition (mm)	Symbol
1	Novobiocin	30	34	NV
2	Bacitracin	10	29	B
3	Vancomycine	30	28	VA
4	Erythromycin	15	28	E
5	Trimethoprim/sulphamethoxazole	1.25/23.75	27	SXT
6	Chloramphenicol	30	26	C
7	Oxytetracycline	30	25	T
8	Gentamicin	10	24	CN
9	Piperacillin	100	23	PRL
10	Ciprofloxacin	5	21	CIP
11	Doxycyclin	30	21	DO
12	Streptomycin	10	16	S
13	Cephalothin	30	8	KF
14	Nalidixic acid	30	0	NA
15	Cloxacillin	1	0	CX
16	Nitrofuran	300	0	F
17	Amoxicillin	25	0	Ax
18	Ampicillin	10	0	Am

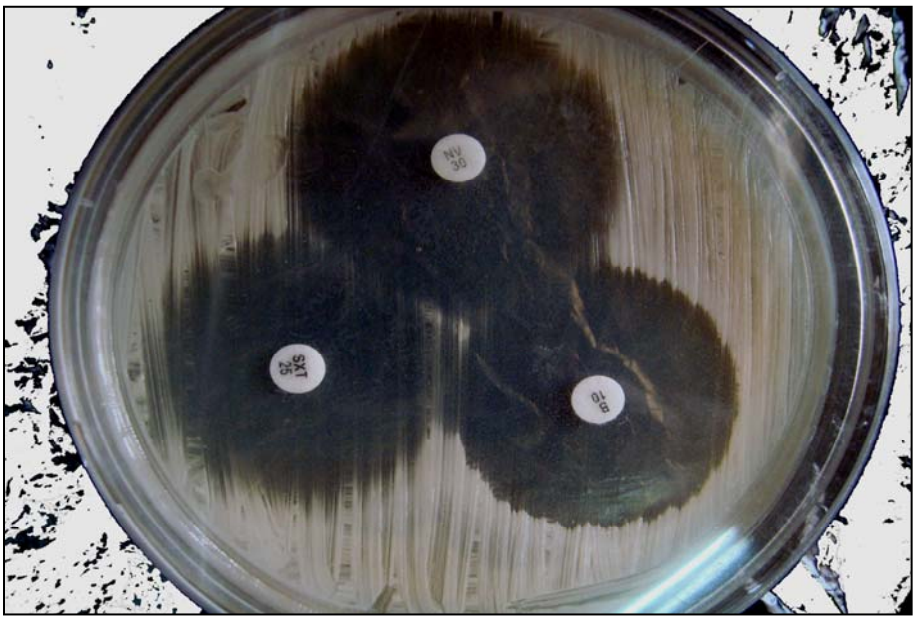

Fig (1): Susceptibility test on Mueller Hinton agar: (right) Bacitracin,(left) Trimethoprim/ sulphamethoxazole, and (above) Novobiocin discs.

References

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فحص حساسية المضادات الحيوية على بكتريا *staphylococcus hyicus* المعزولة من الابل العراقية

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الخلاصة

استخدم ١٨ نوعا من المضادات الحيوية الاكثر شيوعا في العيادات البيطرية لمعرفة حساسية او تقبل بكتريا المكورات العنقودية نوع *staphylococcus hyicus* المعزولة من حالات التهاب الجلد القيحي في الابل العراقية لمعرفة الاختيار الافضل في علاجها. نوفوبايوسين كان الافضل ضد هذا النوع من البكتريا فقد حقق نطاق ٣٤ملم من التثبيط على الوسط الزرعي المستخدم وهو مولر-هنتن. باستراسين كان في المرتبة الثانية والذي حقق نطاق ٢٩ملم من التثبيط في حين كان الفانكومايسين والارثرومايسين في المرتبة الثالثة. في الوقت ذاته، حققت البكتريا المذكورة اعلاه مقاومة تامة ضد كل من حامض النالدكسك، الكلوكساسلين، النتروفيوران، الاموكسيسلين والامبسلين.

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