Isolation of a Species of Genus Herellea from a Patient with Acute Synovitis

CALVIN C. SAMPSON, M.D., CLOTILDE D. SMITH, B.S., M.T., AND HENRY S. ROBINSON, M.D.

Bacteriology Laboratory and Orthopedic Service of Freedmen's Hospital and the Department of Pathology, Howard University College of Medicine, Washington, D. C.

THE tribe of microorganisms, Mimeae, including three genera, Mima, Herellea, and Colloides, was described in 1942 by De Bord.[1] The organisms are gram-negative, motile or nonmotile, small pleomorphic bacilli, morphologically resembling Neisseriae and Pasteurella and biochemically similar to the Pseudomonas-Alcaligenes group. This group of organisms has been generally regarded as non-pathogenic.

To date, only one report appears in the English literature describing the isolation of Herellea species from synovial fluid.[2] Our paper deals with the isolation of Herellea species in cultures of synovial fluid from a patient with acute synovitis. Pleomorphic forms of organisms identified as Herellea were the only microorganisms recovered from this fluid and were therefore assumed to be the cause of the synovitis. The authors believe this to be the second reported instance of the isolation of Herellea species from synovial fluid and the first report of its isolation from a patient with acute synovitis.

CASE REPORT

The patient, a 44 year old man, was admitted to Freedmen's Hospital on March 3, 1959 complaining of pain and swelling in both knees. He stated that six days before admission, there was a sudden onset of pain in his left ankle which migrated to both knees and left shoulder. The pain persisted in his knees and when ambulation became difficult, he sought medical attention. He was advised hospitalization.

The physical examination was negative except for swelling and redness of both knees which was more marked on the left. Pain was elicited on motion and flexion of the knees. There were no physical findings associated with the left ankle and left shoulder. X-rays of the involved joints were reported as negative for intrinsic disease. Laboratory studies showed a white blood count of 12,000 per cubic milimeter, a sedimentation rate of 57 mm per hour, an uric acid of 6.15 mg.% and a negative serology.

Fluid was aspirated from both knee joints. That from the left was submitted to the laboratory for bacteriologic studies (results in the next section). The patient was treated with bed rest, appropriate antibiotics and physical therapy. Subsequent x-rays of the knees were still reported as negative. The results of laboratory studies became normal and the patient was discharged as considerably improved on April 4, 1959.

BACTERIOLOGIC STUDIES

Portions of the synovial fluid were inoculated on blood agar, chocolate agar, eosin-methylene-blue agar and in thioglycollate broth. All of the media were incubated at 37° and the chocolate agar plate was placed in a CO_2 jar. After 24 hours, all plates showed a sparse growth of moist mucoid colonies. Smears showed gram-negative diplococci resembling Neisseriae. Coccoid and short rod forms were seen on smears from the thioglycollate broth. Antibiotic sensitivity studies were made using the plate-disc method with Mueller-Hinton agar and BBL discs (Table 1).

General biochemical tests were employed to establish the identity of the organism (Table 2). Because of these studies, the organism was tentatively identified as Herellea species. A culture, sent to the Communicable Disease Center, U.S.P.H.S. Chamblee, Georgia, was identified serologically as Herellea species.

DISCUSSION

Organisms of the genera Mima and Herellea have been isolated from a number of pathologic processes. Mima polymorpha has been isolated from patients with vaginitis[1], septicemia[3], subacute bacterial endocarditis[4], Waterhouse-Friederichsen syndrome[11] and meningitis[6]. Herellea species have been isolated from patients with vaginitis[1], conjunctivitis[1], acute bacterial endocarditis[7], chronic synovitis[2], and from the spinal fluid of a patient with an injury to his head[8]. To the authors' knowledge, organisms of genus Colloides have not been isolated from pathologic processes.

The genus Herellea must be differentiated from

TABLE 1. SENSITIVITY STUDIES OF HERELLEA SPECIES

Antibiotic	*Concentration*	*Result*
Penicillin	10 Units	R
Streptomycin	30 mcgs.	R
Terramycin	30 mcgs.	S
Aureomycin	30 mcgs.	S
Tetracycline	30 mcgs.	S
Erythromycin	15 mcgs.	S
Chloromycetin	30 mcgs.	S
Furadantin	100 mcgs.	S
Albamycin	30 mcgs.	S
Matromycin	15 mcgs.	S
Neomycin	10 mcgs.	S
Kanamycin	30 mcgs.	S
Madribon	1 miligram	S
Gantrisin	150 mcgs.	S
Ristocetin	10 mcgs.	R

Resistant=R Sensitive=S Micrograms=Mcgs.

TABLE 2. BIOCHEMICAL REACTIONS OF HERELLEA SPECIES

Biochemical Test	*Result*
Glucose	A
Lactose	NC
Sucrose	NC
Maltose	NC
Mannitol	NC
Salicin	NC
Xylose	A
Indole	Negative
Citrate	Positive
Methyl Red	Negative
Voges-Proskauer	Negative
Nitrate	Negative
H_2S	Negative
Motility	Negative
Triple Sugar Iron	NC
Urea	Negative
SS Agar	No Growth
Mac Conkey's	Growth
Oxidase Reactions	Negative

Acid=A No Change=NC

Neisseriae, Pasteurella and the Pseudomonas-Alcaligenes group. A negative oxidase reaction and the ability of Herellea to grow well on EMB agar, Mac Conkey's agar and triple sugar iron agar differentiates it from Neisseriae. A slide agglutination technique described by Carey et al[9] also aids in the differentiation of tribe Mimeae and Neisseriae. Pasteurella is differentiated by its inability to grow on basic media and EMB agar. Gaby and Free[10], described a cytochrome oxidase test that aids in the separation of the Pseudomonas-Alcaligenes-Mimeae group. Biochemical activities of genus Herellea are relatively weak which distinguishes the genus from most biochemically active gram-negative bacilli of the family Enterobacteriaceae. Ino and Neugebauer[2], state that conclusive identification of Herellea species should be based on serologic tests with specific antisera.

The patient in this report had signs and symptoms of acute bacterial arthritis. This was later proven by the isolation and serological identification of Herellea species in pure cultures from the synovial fluid. The patient responded to treatment with appropriate antibiotics as determined by sensitivity studies.

With the increasing frequency of isolation of this group of organisms from pathologic processes, it is necessary that clinicians be made aware of its pathogenicity.

SUMMARY

A serologically proven organism of genus Herellea was isolated from the synovial fluid of a patient with acute synovitis. A brief review of the literature and methods for identification of the species are given. Biochemical and sensitivity studies are presented.

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NATIONAL SYMPOSIUM ON CONTROLLING DISABILITY AND THE PROBLEMS OF MEDICAL ECONOMICS

A national symposium on the problem of controlling disability, especially in the areas of cardiac disease, the degenerative diseases of the aged and psychological disorders, will be sponsored in Boston by the Liberty Mutual Insurance Company as a public service October 15 and 16. Objective of the meeting will be to illuminate the growing challenge of disability control in this era of medical care for all and to consider key issues in medical economics.

The symposium will consist of major panels devoted to three of the most common and most urgent problems in disability control and also of a series of prepared addresses by leaders from industry, labor, medicine, government, law and insurance covering their particular interests in the topic. These talks will provide the social and economic setting as the background for the medical panels and point up their implications for policy.

In announcing the meeting, S. Bruce Black, chairman of Liberty Mutual, stated, "In a time when the public is demanding ever more comprehensive medical care and insurance protection, is faced with rising medical costs and an increase in the aged and chronically ill, the problem of disability control has become one of today's cardinal public issues."

MENTAL ILLNESS INSURANCE

Three quarters of a million people are presently confined to mental institutions. Surveys indicate that approximately 10 million additional individuals or about 6 per cent of the population suffer from a mental illness sufficiently serious to need treatment. Public agencies, management and labor have all worked toward providing mental health services for the groups with which they are concerned. It is recognized, however, that the problems of mental illness are so vast that a good beginning has hardly been made on case finding and treatment, especially early first finding and treatment. An important new effort in this direction has been made by Group Health Insurance Inc. of New York, which beginning July 1, 1959 offers its 75,000 subscribers at no additional premium, short term psychiatric treatments in certain areas for a two year period.

The United States Public Health Service has made a grant to help meet the cost of this experiment and the American Psychiatric Association and the National Association for Mental Health are acting as co-sponsors of the project.