Mycoplasma laidlawii in Human Burns

JEAN G. MARKHAM AND N. P. MARKHAM

Department of Microbiology, Medical School, University of Otago, Dunedin, New Zealand

Received for publication 25 November 1968

Mycoplasma laidlawii was recovered from burns from 13 of 52 patients. In most cases, cocci or bacilli were isolated simultaneously.

Mycoplasma species have been isolated from a variety of animals including man, but no reports have been found of the presence of this organism in human burns. The following note deals with the isolation of a Mycoplasma species identified as a strain of M. laidlawii.

Original isolation of strains of M. laidlawii was made from sewage (5), but more recently these organisms have been found in bovine genital and respiratory tracts (6), in bulk milk (3), and in the human oral cavity (8).

Although M. laidlawii has been regarded as a saprophyte, in the light of these findings this designation has now been questioned (12).

During the investigation of burn flora over a 66-week period, a search for mycoplasmas was made. Cultures were made from burns of 52 patients nursed in single rooms attached to two wards of the same hospital. A sterile velvet pad was pressed on the burned surface, and an impression culture was made on mycoplasma agar medium, similar to that described by L. Hayflick (2) but made according to the method of B. P. Marmion (7). Diphasic medium, also described by Marmion (7), was inoculated with a moistened swab specimen. This medium was subcultured at weekly intervals on mycoplasma agar. All cultures were incubated at 37 C aerobically, with 8% CO2, and anaerobically. After the first week the plates were examined microscopically under low power every 2 or 3 days, and block passes were made on fresh mycoplasma agar at weekly intervals. Cultures were not considered negative until eight passes had been made. Mycoplasma colonies appeared usually on the third or fourth pass. Positive cultures were obtained from 13 (25%) of the patients.

After isolation and adaptation to laboratory medium, all strains grew rapidly at 37 C. Stunted growth occurred at 28 C on medium adjusted to pH 6.8 and on the agar medium from which serum and yeast extract had been omitted. Growth was typical of Mycoplasma on medium without the bacterial inhibitors. On the complete solid medium, well-formed, single colonies measured 1 mm in diameter and possessed an even, granular appearance with a large periphery. In fluid medium, colonies first produced a fluffy growth which later developed into a dense turbidity. The biochemical properties of nine strains were determined as follows. Acid was produced from sucrose, glucose, maltose, mannose, lactose, and galactose by the method of Tourtellotte and Jacobs (11); tetrathiazolium was reduced and there was no inhibition by 0.001% methylene blue by the method of Kraybill and Crawford (4); and all strains produced α-hemolysis when grown on medium containing 3% sheep erythrocytes by the method of Somerson et al. (9).

Serological studies were not made on patients from whom M. laidlawii was isolated, but we intend to do this in a subsequent study.

Antiserum was prepared against one strain by the method of Taylor-Robinson et al. (10) and tested for growth inhibition of homologous and heterologous strains and a strain of M. laidlawii by the method of Clyde (1). All strains showed a 3- to 4-mm zone of growth inhibition. Two strains were sent to Leonard Hayflick (Department of Medical Microbiology, Stanford University, Calif.), who confirmed that they were M. laidlawii.

The Mycoplasma strains were associated with Staphylococcus aureus of various phage types in seven patients; in two of these, β-hemolytic streptococci (group A) were also present. Two strains were not associated with bacteria at the time of swabbing, and the remainder were associated with coagulase-negative staphylococci or Enterobacter species.

There was no clinical evidence of delayed healing of the burns contaminated with M. laidlawii.

This investigation was supported by a New Zealand Medical Research Council grant.

LITERATURE CITED