Streptococcal Group B Type Antigen X in Group L Streptococci

C. LÄMMLER, K. GÜRTÜRK, AND H. BLOBEL*

Institut für Bakteriologie und Immunologie der Justus-Liebig-Universität Giessen, 6300 Giessen, Federal Republic of Germany

Received 17 April 1987/Accepted 9 June 1987

Extracts from 19 of 29 group L streptococcal cultures reacted distinctly with antiserum against group B streptococcal type antigen X in coagglutination and immunodiffusion tests. The X antigen corresponded to those obtained by streptococci of serological groups B and G.

Streptococci of serological group B have been serotyped on the basis of their carbohydrate antigens Ia, Ib, II, III, and IV (11, 13) and the type antigen Ia/c, consisting of carbohydrate antigen Ia and protein antigen c (4, 12). Furthermore, protein antigens R and X have proved useful for epidemiological characterization of group B streptococci (9, 10). Antigen X occurred mainly in group B streptococci from cases of bovine mastitis and rarely in streptococci from cases of human infections (5, 7, 8). Similarly, streptococci of serological group G, isolated from bovine udder infections, expressed an identical type X antigen (1). The same type antigen X was demonstrated by us in streptococci of serological group L, also from cases of bovine mastitis.

A total of 29 cultures of serological group L were studied together with 27 cultures of Streptococcus dysgalactiae (serological group C), 16 cultures of Streptococcus uberis, and 1 streptococcal culture of serological group G. All cultures had been isolated from cases of bovine mastitis.

The streptococci were identified (3) and serogrouped with autoclaved extracts and group-specific antisera against antigens of streptococcal groups A, B, C, D, G, and L (Wellcome, Burgwedel, Federal Republic of Germany). Typespecific antisera were produced with the respective streptococcal reference cultures of group B (8). Typespecific antigens were obtained by extraction of the streptococci in 0.2 M HCl for 2 h at 50°C (2) and tested with the antisera in coagglutination (8) and immunodiffusion tests.

All streptococcal cultures of group L reacted only with the L group-specific antiserum. No reactions were observed with the group B antiserum (Fig. 1). Of the 29 group L streptococcal cultures, 19 (66%) contained type antigen X, as demonstrated by coagglutination. On the other hand, the L streptococci contained none of the other type antigens Ia, Ib, Ia/c, II, III, IV, and R. S. dysgalactiae and S. uberis lacked antigen X and the other type antigens mentioned above. The precipitin lines between type X antiserum and extracts from group L streptococci containing type antigen X were identical with those from group B streptococci type X reference strain 24/60 and with extracts from a bovine group G streptococcal culture (Fig. 2). The identity of the extracts from group L streptococci with the type antigen X from group B streptococci could also be confirmed by immunoelectrophoresis (Fig. 3). Streptococci of serological group L have been isolated mainly from animals and rarely

* Corresponding author.
from infections of humans (6). It is of interest that these streptococci contain an antigen which apparently is identical to type antigen X of streptococci belonging to serological groups B and G. All three species are potential pathogens of the bovine udder. This common antigen might be of significance for their host specificity.

LITERATURE CITED