THE ISOLATION AND DISTRIBUTION IN FLORIDA OF AN ANAEROGENIC PARACOLON, TYPE 29911

MILDRED M. GALTON, MARY E. HESS, AND PATRICIA COLLINS

Bureau of Laboratories, Florida State Board of Health, Jacksonville, Florida

Received for publication February 17, 1947

The term paracolon has been recommended by Stuart, Mickle, and Boorman (1940) to apply to aberrant coliform organisms isolated from man, especially from persons affected with gastroenteritis. In recent years there have been numerous reports regarding the probable pathogenicity of various types of this group of organisms. Edwards (1945) described a paracolonlike bacillus, isolated from colitis in an infant, that possessed antigens typical of the Salmonella arizona group. Epidemiologic and bacteriologic data collected by Stuart and Rustigian (1943) indicates that paracolon “bio-type 32011” was the etiologic agent in epidemics of gastroenteritis.

Type 29911 was first described by Stuart et al. (1943) in a study of the biochemical and serological relationships of paracolon organisms. Further investigation (Stuart et al., 1946) revealed that the Wakefield type dysentery organisms described by Berger (1945) are identical with this paracolon.

Early in 1945 we isolated a “dysenterylike” organism from a severe case of diarrhea. After unsuccessful attempts to obtain a positive agglutination reaction with available Shigella antiserum, the culture was forwarded to Dr. C. A. Stuart, who identified it as paracolon type 29911. In September, 1945, Dr. Stuart requested that we forward to him all cultures, isolated in our laboratory, biochemically resembling type 29911. During the next 3½ months we sent 80 cultures, 63 of which were confirmed as 29911. To date an additional 95 cultures have been isolated in Florida. One of these cultures was obtained from a mild case of diarrhea of 2 weeks’ duration in a 2-year-old child.

In view of the evidence found by the authors and by other workers regarding the association of this organism with the diarrheal diseases, the isolation of an unusually large number of cultures in Florida seems to warrant a description of the organisms on the media commonly used in enteric bacteriology, and a note on their distribution in the state.

ISOLATION

The routine procedure for enteric cultures in our laboratories has been described previously (Galton and Quan, 1944); however, a brief review will be

1 Present address: Norristown, Pennsylvania.
2 Present address: Temple University, School of Medicine, Philadelphia, Pennsylvania.
3 The authors are indebted to Dr. C. A. Stuart, whose work incited this report, for helpful suggestions and critically reviewing the manuscript. Grateful acknowledgment is also made to Dr. A. V. Hardy and Dr. R. B. Mitchell for advice and criticism.
4 We wish to thank Dr. H. A. Carithers, Jacksonville, Florida, for information concerning this case.
given. Fecal specimens received in a glycerol-saline preservative are streaked directly onto SS agar (Difco) and bismuth sulfite (WB) agar (Difco). The amount of fecal material that will adhere to a cotton swab is placed in a tube of Kauffmann's tetrathionate enrichment broth. After 24 hours' incubation the enrichment broth is streaked to an SS agar plate and a brilliant green agar (BG) plate (Kristensen's).

Of the 158 type 29911 cultures obtained, 63 were isolated from directly streaked SS plates alone; 47 from WB alone; 18 from SS plates from enrichment (SST) alone; 5 from BG alone; 14 from both SS and SST; 9 from both SS and WB; and 2 from SS and BG.

**APPEARANCE OF COLONIES**

The colonies of 29911 cultures on SS agar appear translucent, smooth, and slightly grayish. Frequently a darker gray ring may be seen about halfway between the center of a colony and the edge.

On WB agar the colonies are not unlike those of *Pseudomonas aeruginosa*—i.e., a greenish brown—differing in that they are usually flat and in well-isolated areas darker brown concentric rings appear.

Although the highest percentage of our cultures were isolated from SS agar, it was found that 29911 strains grow equally well on bismuth sulfite agar, but owing to the similarity of the colonial forms to those of strains of *Pseudomonas* on this medium, which was not known during most of the 3½-month period, they were not picked. After this observation was made, 43 of the 47 cultures isolated on WB alone were obtained. Only 5 cultures were isolated on brilliant green agar, 3 of which were mixed, and pure cultures plated on this medium grew very poorly or failed to grow at all.

**DISTRIBUTION IN FLORIDA**

These 158 type 29911 cultures were isolated from routine stool specimens received from 31 different cities located from northwest Florida down both the east and west coasts to Key West. From one city health department in the west-central section we found 27 cultures. The remainder were distributed rather evenly throughout the other localities. It is believed that the large number of isolations from this particular town may be attributed, in part, to the greater volume of specimens received from this health unit in comparison to those received from others.

**CONCLUSION**

Since case histories on our type 29911 cultures were not available, with the exception of 2 isolations, it is impossible to come to any definite conclusion regarding the possible public health significance of these organisms from this group of isolations. No doubt a large percentage were obtained from food handlers, though it is not known whether these persons were free of any enteric complications.

The paracolons may be considered in much the same category as certain members of the *Pseudomonas* and *Proteus* groups and *Shigella alkalescens* regarding
their pathogenic status. There is increasing evidence to indicate the implication of these organisms in cases of gastroenteritis and diarrhea. Such paracolon types may eventually be considered as comparable to the Salmonella and Shigella groups.

REFERENCES


