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Characteristics of Mucoid-Encapsulated Organisms Isolated from Cases of Bronchial Asthma.

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Sixty-nine cultures from cases of bronchial asthma were studied and 28 found to be positive for mucoid encapsulated bacilli. There were 9 positives from the nose, 14 from the throat, 4 from sputa and 1 from blood. Cultures were made from swabbings from the upper respiratory tract and in one instance from the blood. Swabbings were first cultured directly on blood agar plates. The swabs were then put into tubes of Avery's medium and incubated over night. If the gram stain for organisms grown in Avery's medium showed the presence of gram negative encapsulated bacilli the following day cultures were made from the Avery's tubes to blood agar plates. With 2 exceptions there was poor growth of the mucoid encapsulated organisms cultured directly from the swabbings to blood agar plates. The organisms grew well in Avery's medium and later when transferred grew well on the blood agar plates.

The organisms described in these studies were gram negative, encapsulated, non-sporulating bacilli. There was a great variation in size and shape, ranging from coccoid to long rod forms in the same cultures. On *agar* the colonies were large and grayish white in color. Viscosity varied with the individual strains. In *broth* there was a general cloudiness of the medium with a heavy stringy sediment. In *gelatin* there was a grayish white mucoid growth on the surface. With the exception of one case there was no liquefaction of the gelatin.

Fermentation reactions were variable and in accordance with similar reactions studied by other investigators (Small and Julianelle,[1] Fitzgerald,[2] Clairmont,[3] Perkins[4]). Dextrose, mannite, lactose, saccharose, maltose, galactose, raffinose, rhamnose, sorbitol, salicin, inulin, dulcitol and inositol were used. The majority of the organisms isolated fermented dextrose, mannite, lactose, saccharose, maltose, sorbitol and salicin. With these carbohydrates there was

[1] Small, J. C., and Julianelle, L. A., *J. Infect. Dis.*, 1923, **32**, 456.

[2] Fitzgerald, J. G., *J. Infect. Dis.*, 1914, **15**, 268.

[3] Clairmont, P., *Z. Hyg. Infekt. Kr.*, 1902, **39**, 1.

[4] Perkins, R. G., *J. Exp. Med.*, 1900, **5**, 389; *J. Infect. Dis.*, 1904, **1**, 241.

gas formation as well as fermentation with acid. Galactose, raffinose and rhamnose were fermented with acid formation but gas production was quite variable. Inulin was fermented in only one instance.

In *milk* acid was formed in most instances though with 2 strains an alkaline reaction occurred. Coagulation took place in a few instances. Indole production was absent in all but 3 cases.

In general it will be noted that the organism studied in these cases of bronchial asthma gave typical cultural characteristics, morphology and biochemical reactions of members of the mucoid encapsulated group of bacilli.[5] When present in bronchial asthma there was an associated hypersensitivity of the patients towards the intra-dermal test with vaccine prepared from the bacilli.

7761 C

Augmentation of the Positive After-Potential of Nerves by Yohimbine.

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A nerve poisoned by yohimbine exhibits, after a single response, a recovery curve of excitability characterized by a refractory period, a supernormal period, and a subnormal period.[1] Of these the first 2 have been recognized as existing in unpoisoned nerve and have been brought into approximate relationship with the parts of the action-potential known as the spike and negative after-potential. A subnormal period has been recognized in unpoisoned nerve but only after the nerve has been tetanized, in which case the subnormality is associated with the positive after-potential.[2] The latter association suggests that the effect of yohimbine is to augment the process responsible for the positive after-potential. Such being the case, the apparent absence of a subnormal period following a single response in unpoisoned nerve would be interpreted as due to the small size of the positive after-potential which there exists.

[5] The Mucoid-Encapsulated Group, A System of Bact. in Relation to Medicine, Med. Research Council, His Majesty's Stationery Office, London, 1929, **4**, 289.

[1] Graham, H. T., PROC. SOC. EXP. BIOL. AND MED., 1933, **31**, 193.

[2] Gasser, H. S., *Am. J. Physiol.*, 1934, in press.