

retracted. No separate nodules could be felt in the glands. No connection between the mammae and the large lymph-glands of the axillæ could be made out. The apex-beat was in the fifth space, inside the nipple-line and somewhat heaving. Extension of the heart to the right of the sternum could not be established by percussion. There was no thrill. The first sound in the mitral area was loud and short, ending in a distinct murmur. At irregular intervals an extra-systole was thrown in, and later a distinct gallop-rhythm developed. In the pulmonic area there was a rough, grating, systolic murmur, at times distinctly purring, so that pulmonic obstruction was suspected. (At autopsy, however, the valves as well as the aorta and pulmonic artery were found to be normal.)

Percussion note over the right lung was slightly dull, especially over the anterior aspect. Breath sounds were somewhat distinct, more so over the right lung. There were no râles.

The abdomen was full, and in the left hypochondrium a tumor mass was readily felt, which issued from beneath the left costal arch and extended beyond the umbilicus. The tumor was somewhat movable, descended with respiration, was slightly tender, of hard consistency, notched on the median surface. Slight percussion over the tumor brought out a flat note. The lower margin of the liver descended to about 2 inches below the costal arch in the mammary line; its consistency was not much increased; its surface was smooth. No glandular masses could be palpated in the abdomen. The umbilicus was freely movable and not retracted.

At the time of admission to the clinic a skin tumor as large as a small walnut was noticed in the posterior axillary line of the right side. This tumor disappeared later. The deep reflexes were normal.

The blood-count showed 110,000 white cells, 82 per cent. small and 6 per cent. large lymphocytes, and a moderate secondary anemia.

Transient skin-rashes (areas of hyperemia) were observed at different times.

The urine contained traces of albumin and a few casts; gravity 1.020.

Course of Disease.—The patient was under observation about three weeks. During this time the dyspnea was increasing and caused much discomfort to the patient. Tracheotomy was considered, but the general condition of the patient seemed to exclude such an operation. Venesection gave temporary relief. Toward the end there was marked cardiac insufficiency with gallop-rhythm, very irregular pulse and pulmonary edema.

According to the statement of the patient the disease began with redness and itching of the skin of the nose, that was soon followed by swelling of the nose and lips. She was treated for months for eczema by various physicians, and it seems likely that at this time the general swelling of the lymph-glands was not apparent. It is therefore reasonable to assume that the skin lesion was the earliest manifestation of the disease.

The most remarkable feature in this case was found in the condition of the mammary gland, a condition which I have failed to find described in the literature, although in a very few cases lymphomata have been reported in the lacrimal, parotid and maxillary glands in association with lymphomata outside the glands.¹

An autopsy was performed by Dr. H. Gideon Wells, and the histologic study of the tissues was made by Dr. B. F. Davis, and an abstract of their report follows:

There were found the usual lymphatic hyperplasias of chronic lymphatic leukemia, lymphoid infiltration of the viscera, and in addition lymphoid infiltration of the skin

1. Pinkus: Ueber die Hautveränderungen bei lymphatischer Leukämie und Pseudo-Leukämie, Arch. f. Dermat. u. Syph., 1899, I, Nos. 1, 2.

Nekam: Leukämie der Haut, Monatschr. f. pract. Dermat., 1899, Ergänzungsheft.

Kaposi: Pathologie und Therapie der Hautkrankheiten, Vienna.

Kreibich: Ein Fall von leukämischen Tumoren der Haut, Arch. f. Dermat. u. Syph., 1899, xlvii, 185.

Kümmel: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1897, II, 111.

of the nose and lips. The mammary glands were found replaced by a mass of lymphoid tissue of uniform consistence, resembling in its gross appearances sarcomatous tissue, the mass of new tissue when dissected away from the skin and adjacent fat tissue from one breast measuring 12 by 12 by 4 cm., and weighing 350 gm. Microscopically the normal tissue of the mammary gland was found to have disappeared almost entirely, the remains of an isolated gland tubule or duct being found only rarely in the mass of large and small round cells which make up the growth. These cells infiltrate the connective tissues in the nipple and areolæ up to, but not into the epithelium, accounting for the swollen condition of the areolæ. (A full report of the anatomic findings will be published in the *Transactions of the Chicago Pathological Society.*)

A NEW STAIN FOR BACTERIAL CAPSULES WITH SPECIAL REFERENCE TO PNEUMOCOCCI *

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After much experimentation the following method for staining bacterial capsules has been devised. It has proved of such value in a study of autolysis of pneumococci, in their identification in culture and exudates as well as in staining the capsule of *Streptococcus mucosus* and, with a slight modification, the capsule of the *Bacillus mucosus* also, that a brief report seems desirable at this time.

DIRECTIONS

Make a thin smear on a perfectly clean slide or cover-glass. If the material, such as sputum, is too thick, add enough distilled water so that it can be spread evenly by means of a piece of fine tissue or cigarette paper. In case of cultures (blood-agar, serum, glucose or Loeffler's blood-serum being preferable), remove a small amount of the growth from the surface of the medium and at once mix thoroughly with a loopful of serum on the slide, or, better still, make a rather dense suspension in a few drops of distilled water and then mix an equal quantity of this suspension with serum, and spread by means of tissue-paper. As the smear becomes nearly dry cover for ten to twenty seconds with 5 to 10 per cent. aqueous solution of tannic acid; wash in water and blot; stain with carbol [saturated alcoholic solution gentian violet (Grübler) 1 pt., 5 per cent. phenol in water, 4 pts.] or anilin gentian violet, half a minute to a minute, heat over flame but do not boil; wash in water again; Gram's iodine solution for half a minute to a minute; decolorize in alcohol (95 per cent.); stain for from two to ten seconds, depending on the thickness of smears, with saturated alcoholic (60 per cent.) solution of Grübler's eosin; wash in water and blot finally, clear in xylol and mount in balsam, or examine directly. (If the organism, like the *Bacillus mucosus*, is Gram-negative, the bacillus may be stained with Loeffler's or aqueous methylene blue.)

The pneumococci are stained deeply brownish black, sharply differentiated from the capsule, which is stained pink. Beautiful results are also obtained with the *Streptococcus mucosus*. In the thickest part of the smear the space occupied by the capsule may be perfectly clear; elsewhere in the smear, if properly made, where the conditions are suitable for absorption of eosin, the capsule is stained deeply pink; not rarely a clear retraction zone (often mistaken for the capsule in former methods) may be seen peripherally to a distinctly stained, often large capsule.

In case of sputum in which the cocci are embedded in a more or less tenacious mucus the capsules, at times, are not rendered stainable by the above method. In that case it is well to fix and stain simultaneously with the 2 per cent. aqueous tannic acid, 4 parts, and saturated solution of gentian

* From the Memorial Institute for Infectious Diseases. For a more complete report see Jour. Infect. Dis., 1911, viii.