More recently, an examination of 2260 staphylococcal isolates from all specimen sources (the percentage of blood culture isolates not specified) over a 63 month period showed that *S. lugdunensis* accounted for 229 (10.1%) of these non-*S. aureus*, non-*S. epidermis* strains.⁹ The most common clinical diagnoses were skin and related infections. Blood cultures accounted for 15 (9.7%) of the 229 isolates, but no cases of endocarditis were detailed.

Characteristics useful in differentiating *S. lugdunensis* from other staphylococci include a negative tube coagulase but a positive clumping factor, Voges-Proskauer reaction, DNase and phosphatase activity. Our isolate, however, was Staphaurex (clumping factor) negative. The carbohydrate reactions most closely resemble *S. hominis*. The most specific property of this organism is the production of ornithine decarboxylase. Amine production by decarboxylases can be identified using Moeller's decarboxylase medium with bromocresol purple as a pH indicator, and after inoculating the organism, incubating anaerobically by overlaying with mineral oil and then examining at 18–24 hours for a yellow to purple colour change.

In view of the varying DNase activity repor-

ted,^{4,6,7} and as in our case, a negative clumping factor, the most reliable means of identifying *S. lugdunensis* is to look for ornithine decarboxylase activity. When screening for this rare but clinically very important species, the results of other tests can be misleading.

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Marking of resection margins

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Abstract

Starch was used to mark the resection margins of breast tissue simply by rolling formalin fixed specimens in, for instance, glove powder. Starch adheres satisfactorily to the specimen and is obvious, microscopically, if crossed polarisers are used. There is little "carry-over" of starch across the rest of the tissue, and subsequent radiology of specimen or blocks is not prejudiced.

It is concluded that starch powder is eminently suitable in most cases as a single marker of the surgically cut surface. The method is quick, cheap, and clean. It should not be relied on, anymore than other methods, to mark the surgically cut surface of ragged or partly disrupted specimens.

Current interest in breast screening has precipitated a spate of descriptions of methods for marking the surface of surgical specimens for histological examination.^{1–6} These methods

include painting with India ink, Tipp-Ex, organically coloured gelatins, or artists' pigments (as they are or suspended in acetone), dunking in 1% alcian blue, or the surface coating of erythrocytes. In general, techniques using dyes and pigments are messy and may be time-consuming. Tipp-Ex and artists' pigments may interfere with subsequent radiography. The surface coating of erythrocytes has been found to be unreliable.⁷ The use of starch powder as a single marker seemed to us to be potentially simple, clean, quick, cheap, unlikely to interfere with radiography, and possibly reliable.

Methods

The surface of the formalin fixed specimen is quickly dried with a paper towel. Starch glove powder or ordinary maize starch (cornflour) is spread liberally on a dry area of the cut-up board, and the specimen is rolled in the powder rather like a meat-ball until all the surface is well covered with powder. The surface is again pressed against a paper towel. Serial

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Figure Resection margin of breast lump showing birefringent starch particles (half-crossed polarisers).

slicing of the specimen, which must be held firmly, is performed with a sharp blade or knife drawn through the specimen, if possible only once for every slice. Contrary to the practice in most laboratories, we do not routinely place our loaded cassettes into formalin solution until the end of each "cut-up" session (up to about an hour).

Results

The surface coating of starch is visible on routine microscopy but is strikingly apparent if crossed polarisers are used. "Carry-over" of starch away from the surface is minimal. There is no interference with subsequent radiography of either the specimen or tissue blocks. We find that immediately placing the cassettes into formalin does not result in substantial loss of the starch from a well coated specimen.

Discussion

Our findings confirm that starch powder has all the advantages it seemed likely to have as a single marker for the surface of surgical specimens to be used for histological examination. The histological result is also reliable and aesthetically pleasing. "Carry-over" into

the specimen is minimal, and the appearance of birefringent starch particles cannot be mistaken for Weddellite. We recommend starch powder for routine use as a single surface marker, but for differential marking various pigments are still necessary, and the starch method cannot be used satisfactorily in conjunction with pigments.

We do not think that either starch powder or any of the other agents already mentioned can be relied on for marking resection margins of easily disrupted, ragged, and especially fatty, specimens with irregular tags of tissue on the surface.

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