Symposium

Newer Diagnostic Techniques:
Rectocolonic Exfoliative Cytology—A New Approach

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I SHOULD LIKE to begin by departing from the customary presentation of statistics regarding this very common cancer, as well as the usual admonitions for diagnostic vigilance, by presenting a brief clinical example.

A 62-year-old woman was referred one year postresection for sigmoid carcinoma. She was free of gastrointestinal complaints.

A physical examination was unremarkable, as were sigmoidoscopy, barium-enema with air-contrast study, liver function studies, and numerous stool examinations for occult blood. By all conventional studies then, she was free of recurrent disease. (Slide, please.)

Rectocolonic cytology was performed at the time of sigmoidoscopy by a method to be described; this nest of malignant cells, which you see here, was detected, and the hunt was on.

Colonoscopy was performed with a 185-cm flexible colonoscope, passed to the cecum, and then withdrawn slowly. (Next slide.)

At the 185-cm level this umbilicated lesion was identified. Its reverse side was an ulcerated carcinoma. (Next slide.)

This slide depicts the presently available screening techniques in the detection of rectocolonic malignancy, with apologies to Dr. Watson for omitting arteriography. I direct your attention to the last on this list.

Of the practical methods listed, one proven to be highly accurate so far, and definitive, yet much under-utilized, is exfoliative cytology. (Next slide.)

The obvious difficulties in rectocolonic cytology are in obtaining an adequate and representative specimen, free of debris. This has prompted a variety of techniques, which you see listed. These have met with varying degrees of success. However, the most productive and accurate yields have required cleansing enemas and purgation. The vigorous preparation, time, patient education, and cooperation necessary to achieve even acceptable results has deterred all but the most zealous of physicians. (Next slide.)

The purpose of this report this afternoon is to summarize our experience with a rectosigmoid lavage and suction instrument which was designed to assist the endoscopist in 1) maintaining optimal visualization, free of obscuring debris, or, indeed, active lower-bowel hemorrhage, and 2) obtaining material for cytologic examination from numerous foci from the visualized 25 cm of rectosigmoid and, more importantly, the more proximal colon. All could be done, hopefully, with a minimum of patient discomfort, preparation, and physician time, and may be easily adapted as an office or outpatient procedure. (Next slide.)

Briefly, the instrument, as you see here, as originally constructed simply utilized a commercially available central irrigating unit as a power source of water or saline spray. This was attached to a simultaneous suction unit below. (Next slide.)

This, a more recent modification of this
irrigating concept, demonstrates the use of the same pulsatile saline lavage inlet above, and a simultaneous suction outlet below, in parallel. A three-way valve here controls the return for collection of one continuous aspirate in this flask, or numerous small samples. The power source and suction unit are enclosed in a single housing. The rate and pressure of delivery and suction can be graded accordingly, with a maximum of 1,000 ml/min of saline solution and a vacuum range of 0 to 20 inches of mercury. The simultaneous lavage and suction occur within a closed system, permitting a more rapid examination and, indeed, as well, better patient, physician and, not least, nurse, acceptance. (Next slide.)

The same concept, as you see here, has been adapted for use through the flexible colonoscope.

Now, the procedure. The patients were all examined in the standard knee-chest position. In the initial series, the patients with radiographic or previously documented rectosigmoidal or descending colonic lesions were studied, and no preparative enema was initially used. The saline spray cleared mucus, feces, or blood from suspicious areas, as well as provided an isotonic medium for the collection of cytology samples. A standard sigmoidoscope was inserted to 25 cm, or as far proximally as possible. The instrument you saw here was inserted through the proctoscope, and lavage, with simultaneous suction, was commenced. (Next slide.)

When radiocontrast material (Hypaque) was introduced by the instrument, it could be identified as far proximally as the ascending colon and, in some cases, the cecum. Armed with this information, patients with more proximal radiographic lesions were studied. If, indeed, a lesion proximal to the descending colon were suspected, a fluid diet, for two days preceding the examination, was advised. Otherwise a saline enema was administered prior to the study.

Physiologic saline solution, 750 to 1,000 ml, was then introduced by the instrument through the sigmoidoscope at the 25-cm level or again, as far proximally as passed. The patient is turned, the abdomen massaged, the patient returned to the original position, the instruments re-inserted for right-colon examination, and the lavage fluid retrieved. The average total duration of the procedure for left-sided lesions (meaning rectosigmoidal left colonic lesions) was 10 minutes, in addition to the standard sigmoidoscopy time, that for the right-sided lesions 20 to 25 minutes. The aspirates were collected immediately in equal volumes of 95 per cent alcohol, centrifuged at 2,500 rpm for 15 minutes, and then stained in the conventional Papanicolaou method. The remaining sediment was then examined in cell block.

Now, the results: 144 patients have been studied to date with these instruments and their prototypes, and satisfactory specimens have been obtained from all but four patients. Final histologic diagnoses were obtained for 85 of these patients, who underwent laparotomy; only these cases are presented here. Additional information was frequently obtained from cell blocks which contained fragments of intact tissue with preserved architecture, and I will show you these shortly. (Next slide.)

In the initial study of 57 patients with lesions in the range of the sigmoidoscope, a 100 per cent correlation existed between preoperative cytologic and final histologic diagnoses. The modalities of preoperative diagnosis are listed above. Positive corresponds to criteria of malignant disease, negative to benign disease. The malignant diagnoses included a lymphosarcoma, as well as adenocarcinoma.

There were also in this group eight patients whose initial preoperative surgical biopsies, performed by experienced rectocolon surgeons, were interpreted as showing benign disease, but whose cytology was posi-