

# Sexual Dysfunction Following Proctocolectomy and Abdominoperineal Resection

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Sexual dysfunction after rectal excision was studied in 45 male patients who were less than 50 years of age. Of 25 patients having had proctocolectomy, one (4%) was impotent, while three (15%) of 20 patients having had abdominoperineal resection were impotent. Two patients in the abdominoperineal group reported no ejaculation with normal potency and sensation of orgasm. The age of the patient and the extent of dissection seemed to be the two main factors concerned with sexual dysfunction after rectal excision.

SEXUAL DYSFUNCTION (impotence) after rectal excision is a distressing complication. The incidence of this has been reported as 0–20% after rectal excision for benign disease and 33 to 95% after abdominoperineal resection.<sup>2–4,6,8–11,13</sup> A recent study reported an incidence of impotence of 100% after abdominoperineal resection for malignant disease.<sup>13</sup> However, the average patient age in that series was approximately 70 years. One factor cited for the higher incidence of impotence after abdominoperineal resection as compared with the incidence after proctocolectomy is the wider resection necessitated by the malignant disease. As alluded to by May<sup>9</sup> and Goligher<sup>6</sup> in their reviews of this subject, patient age is probably another very important factor. We evaluated the incidence of sexual dysfunction after proctocolectomy and abdominoperineal resection in patients of similar age at our institution.

## Materials and Methods

The series involved 45 male patients. All were less than 50 years old at the time of operation. Twenty patients had had abdominoperineal resection, and 25 proctocolectomy. All patients in the proctocolectomy group had benign disease, mainly chronic ulcerative colitis. Of the 20 patients in the abdominoperineal group, 18 had a rectal carcinoma, one had an extensive rectal hemangioma, and one had a rectocutaneous fistula after sigmoid resection for diverticulitis. The ages at operation ranged from 30 to 49 years (mean 44) in patients with abdominoperineal resection and 16–48

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years (mean 30) in patients with proctocolectomy. All patients were contacted personally and questioned regarding general health, stomal function, and sexual potency. For each of two patients who had died, the widow supplied the necessary information. Only one patient refused to answer our specific questions. The length of follow-up ranged from two to ten years, with an average of four years.

## Results

### *Abdominoperineal Resection*

Of the 20 patients, 17 were able to have and sustain an erection. Three patients (15%), whose ages were 43, 48, and 49 years, were completely impotent after the operation, and two patients were potent but did not ejaculate. Several patients mentioned that their libido was less than before the operation.

### *Proctocolectomy*

Of the 25 patients, 22 reported no sexual difficulty. Two of the 22 patients reported improved sexual function postoperatively because of improved general health. Three patients reported sexual dysfunction, including one patient (age 47 years) who was impotent (4%). The remaining two patients both complained of difficulty maintaining an erection; however, intercourse was possible in each instance.

## Anatomy and Physiology

The physiologic mechanisms comprising male sexual function are dependent on an intact autonomic nervous system. Erection, a parasympathetic mediated response, is governed by impulses traveling along the nervi erigentes, which arise from the second, third, and fourth sacral nerves. Ejaculation, however, is controlled by the sympathetic branches of the autonomic nervous system.

The sympathetic fibers originate from the lower

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thoracic and upper lumbar segments of the spinal cord. These fibers descend along the aorta, forming the superior hypogastric plexus near the aortic bifurcation. At about the level of the sacral promontory, the plexus divides into two trunks, which enter the pelvis, along its lateral walls, as the hypogastric nerves.

The parasympathetic fibers to the pelvis, known as the *nervi erigentes*, arise from the second, third, and fourth sacral nerves. These fibers join the hypogastric nerves on each pelvic wall to form the pelvic plexuses. Fibers from these plexuses stream downward and forward to the seminal vesicles, prostate, and corpora cavernosa lodged in the heavy sheath of the retroperitoneal tissue.<sup>1</sup>

From a surgical standpoint, the pelvic plexuses lie lateral and anterolateral to the rectal ampulla. Because they are closely applied to the lateral pelvic walls by the connective tissue surrounding them, they usually are well removed from the surgical field, unless dissection is extended to these walls in removal of lymph nodes.<sup>1,7</sup> In their classic paper on the pelvic autonomic nerves in the male, Ashley and Anson<sup>1</sup> pointed out that, because intermingling within the plexuses is so great, localized excision would be expected to result in relatively slight interference with function. Goligher<sup>6</sup> found it difficult to believe that the pelvic plexuses could be severed by the ordinary combined excision of the rectum, no matter how widely the lateral ligaments were cut. However, he pointed out that he could not see any other way in which the parasympathetic nerves governing erection could be damaged in most cases.

In considering the sympathetic nerves by themselves, Goligher<sup>6</sup> emphasized two places where they may be damaged without concomitant injury to the parasympathetic nerves: (1) where they lie in the presacral nerve during separation of the rectum from the sacrum and (2) just before they enter the seminal vesicles.

### Discussion

Our results are in accordance with studies that show a higher incidence of sexual dysfunction after abdominoperineal resection as compared with after proctocolectomy. In our study, the incidence of impotence after abdominoperineal resection was lower than previously reported, while the incidence of sexual dysfunction after rectal excision for benign disease was essentially the same as that reported elsewhere. A seemingly likely explanation of the former is that all patients in the present series were less than 50 years old at operation. In contrast, in the study by Weinstein and Roberts,<sup>13</sup> in which the incidence of impotence after abdominoperineal resection was 100%, the average age of the 12 patients at operation was approximately 70 years. In

Goligher's review of 81 patients less than 60 years old, one-third were impotent and of those retaining potency, one-third were sterile.

One factor cited for the higher incidence of impotence after abdominoperineal resection as compared with the incidence after proctocolectomy is the wider resection necessitated by malignant disease. However, patients having rectal excision for malignant disease are usually much older than those having proctocolectomy for benign conditions. Watts et al.<sup>12</sup> noted that, of 41 male patients who underwent rectal excision for ulcerative colitis, eight were more than 50 years old at operation and six of these had permanent and complete impotence after operation, whereas only one of the 33 patients less than 50 years old had permanent impotence. Two other patients in the latter group were reported to have a failure of ejaculation.

Many chronically ill patients with inflammatory bowel disease may have improved sexual function after proctocolectomy as their general health improves. In other patients, the presence of a stoma and appliance may be a sexual deterrent. For patients requiring an ileostomy, the Kock pouch may be sexually more appealing than the conventional Brooke ileostomy. An alternative for patients who are impotent after operation is the inflatable penile prosthesis. Functional application of this device was successful in 168 of 175 impotent males.<sup>5</sup> The risk of sexual dysfunction and currently available alternatives should be discussed with each patient before operation.

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