

POST-OPERATIVE INTESTINAL PARESIS. A FURTHER  
CONTRIBUTION TO ITS PREVENTION.

---

BY

DANIEL H. CRAIG, M.D.,  
Boston, Mass.,

Surgeon to Out Patients, Free Hospital for Women; Instructor Boston  
Polyclinic, etc.

---

It was my privilege to publish in this journal, in the April issue of 1904, a preliminary report of my work in the prevention of post-operative intestinal paresis, and also incidentally post-operative intestinal adhesions, and as many highly esteemed surgeons and gynecologists have interested themselves in my method of procedure sufficiently to give it a trial, the inevitable and much to be desired result has been several questions, the answers to which could not be embodied in my preliminary report. The object, then, of this further report is not alone to give expression to the additional facts acquired by a wider experience, but also to embody the answers to the questions propounded by others arising out of

their varied experiences. It is far easier in the limited space at my command to embody the points involved in a homogeneous text than to take up the questions seriatim, and I shall therefore follow this course.

The question of most frequent and insistent recurrence and the one undeniably most important, and from a perusal of my former report, most completely justifiable, is as to the behavior of the bowels during the first few days after laparotomy in cases in which the eserine has been used.

To review briefly the *modus operandi* of eserine salicylate in preventing intestinal paresis it is remembered that belonging, as it does, to the group of spinal depressants it lessens, or inhibits the inhibitory impulses ordinarily sent to the intestinal musculature by way of the splanchnics as a reflex result of peripheral irritation. Also that, through its powerful stimulant action either directly upon the muscular fibers of the intestine or the nerve terminations therein, the plexuses of Auerbach and Meissner are saved a vast amount of work, reaching in cases of actual paresis complete exhaustion.

Such being the therapeutic action of eserine it is plainly evident that the administration of a full dose, gr.  $\frac{1}{30}$ , or even a little more in women giving a marked history of intestinal atony, of eserine salicylate at the earliest possible moment after the opening of the abdomen, is going to actually prevent intestinal paresis and leave the muscular and nervous mechanism in practically the same condition as obtained before the operation.

To achieve this result in the highest degree the eserine must be administered at the earliest possible moment. To this end I now make the first step in every laparotomy a thorough exploration of all areas to be involved in the operation, and if it seems probable that the operation will be completed without doing serious injury to the muscular tunics of the intestine the eserine is administered immediately, often before the cavity has been opened more than two to five minutes. This early administration is important because, from the earliest moment of exposure and manipulation of the intestines reflex inhibition begins, which is immediately combated by the intrinsic plexuses, paresis only reaching completion upon the utter exhaustion of these latter. Therefore, of course, the shorter this battle can be made the less loss on both sides.

Returning now to the post-operative conduct of the intestines under the use of eserine, my constantly broadening experience,

together with that of many other surgeons who have been kind enough to inform me of their results and views, leads me to expect the bowels to behave exactly as though the abdomen had not been opened. In other words I note a great similarity in the conduct of the bowels after laparotomy and after plastic gynecologic operations in no wise involving the peritoneal cavity.

It is a fact, too well recognized clinically to require any experimental demonstration, that if a well person, or one ill with any extra-abdominal lesion is subjected to a thorough catharsis, the intestinal lumen thoroughly cleared, and is placed in bed on either a liquid diet poor in indigestible residue, or for a day or two upon no diet at all, there will be no bowel movement unless produced by some powerful hydrogogue or saline cathartic. Hydrogogues and salines will certainly produce catharsis in a patient in whom there is still sufficient circulatory vitality to accomplish absorption, and in whom the intestine is not absolutely obstructed or paralyzed. This is true because, by determining liquids from the patient's own blood-vessels into the intestinal lumen they themselves furnish the material which peristalsis may ultimately expel. But such a procedure, to use the mildest possible expression, would seem inexpedient in a patient suffering from surgical shock, narcosis, and in many instances, hemorrhage, together with a limited ability to ingest liquids. It would certainly appear more rationally scientific to leave the great nutrient circulating medium of the entire organism in the nearest possible approximation to its norm.

Granted that the bowels are to act exactly as in extra-abdominal operations, we should expect, owing to the peristalsis unquestionably stimulated by the eserine, to have any marked accumulation of fecal matter not removed previous to operation, as for instance, in emergency operations, promptly expelled after operation. Many cases, one of which was reported in some detail in the former paper, confirm this view, the bowels moving freely and easily in from twelve to forty-eight hours after the return of the patient to her bed.

On the other hand, when the bowels have been adequately prepared, an absence of movement during the same period is abundant testimony to the thoroughness of the preparation. During this interval both nurses and surgeon should be eternally vigilant and watch constantly for signs and symptoms of intestinal paresis, or adynamic ileus. This is true for several reasons: First, because eserine, like any other drug throughout the pharmacopeia,

may occasionally fail to manifest the expected therapeutic action: (a) because of poor preparation; (b) because of loss of strength through being kept too long; (c) through idiosyncrasy on the part of the patient. Secondly, because by far the most common cause of incoercible, fatal post-operative paresis is sepsis and no method of treatment can wholly overcome the results of accidental infection or of unclean, careless or slovenly technic. Thirdly, because in certain cases, especially where drains have been used or large, raw surfaces left, obstruction may supervene, which is mechanical, and not merely parietic.

Should signs and symptoms of adynamic ileus or obstruction supervene, they would be those ordinarily observed where no eserine had been given, and the treatment would in no way differ in a patient who had received eserine from that now ordinarily employed in such cases and too well known to justify description here.

After eserine, in my personal experience, and that of other Boston, New York, Philadelphia, and Cincinnati surgeons, the patient is surprisingly comfortable, usually vomits only once or twice, if at all, has a minimum of thirst and little or no abdominal pain. There is entire absence of abdominal distension, the abdomen not infrequently appearing even slightly retracted.

Of course, body waste intended for intestinal elimination accumulates in the bowel, even though the patient is on starvation diet, as is often the case for a few hours after laparotomy, and it is therefore wise to observe carefully any indications for a bowel movement which would be observed in any extra-abdominal case, and if such special indication arises, a saline, with or without calomel, may be given, or an enema may be employed. Otherwise, in the entire absence of intestinal or gastric symptoms the bowels may be trusted to move upon the sufficient accumulation of waste. But these indications seldom occur, and never until the patient has sufficiently recovered to be abundantly able to ingest more than sufficient liquid to compensate the depletion by the saline. Personally, I begin on the evening of the day succeeding operation, and administer a tablet containing aloin, gr.  $\frac{1}{8}$ , ext. belladonna, gr.  $\frac{1}{8}$ , strychnia sulphate, gr.  $\frac{1}{60}$ , and eserine salicylate, gr.  $\frac{1}{100}$  each night. I prefer this to salines, because it keeps up a more active peristalsis.

In my former paper I laid considerable stress upon audible peristaltic rumbling of the bowel. The occurrence of such borborygmus is, of course, a comfort to the surgeon because it settles,

often within the first hour after the patient's return to her bed, the entire question of intestinal paresis, but experience shows that, in accordance with the entire normal behavior of the bowel, it is often no more heard than it is in any extra-abdominal case. Briefly: If heard it is conclusive proof of the existence of active peristalsis, but if not heard it means absolutely nothing.

It is useless reporting confirmatory cases here, as they would merely constitute a duplication of those in the former paper. Suffice it to say that the method is now in daily employment at the hands of critical surgeons, with results sufficiently gratifying to lead them to signify their approval to me, for which I heartily thank them, and that since its adoption I have had no single occasion to worry for even an hour over post-operative intestinal paresis. One thing only I would particularly ask, and that is, that before adopting the use of eserine surgeons would learn thoroughly its physiological action, in which my first paper will aid them somewhat, and that they would sufficiently familiarize themselves with their source of supply to avoid the use of a deteriorated preparation. Eserine salicylate should *never* be kept in solution, because under such circumstances it loses a large part of its therapeutic action on the intestinal musculature. Oculists assure me that solutions which have changed to a marked yellowish color will still contract the pupil, but such solutions are absolutely unreliable, and therefore dangerous, for subcutaneous use in our present connection.

386 COMMONWEALTH AVENUE.