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## Postoperative Adynamic Ileus: Its Prevention and Treatment By Osteopathic Manipulation

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Postoperative adynamic ileus is a common, but poorly understood, complication of surgery. Much more knowledge is needed before this problem will be completely explained.

Up to the present time, there have been two general forms of management of this condition. First is the use of tubes, both nasogastric and rectal, coupled with negative pressure to empty air from the lower or upper gastrointestinal tract as might be indicated. Second is the use of drugs to stimulate muscular activity of the gastrointestinal canal.

Recently an attempt has been made to demonstrate the effect of osteopathic manipulation in the

This paper, submitted in partial fulfillment of the requirements for residency training in surgery, was prepared by Dr. Edward P. Herrmann during a residency in the Department of General and Special Surgery at the Kirksville Osteopathic Hospital of which Dr. Ross B. Thompson is Chairman. The project was supported by a grant from the National Osteopathic Foundation for the year 1964-65.

prevention and treatment of postoperative adynamic ileus. This paper presents clinical observations made during the course of that attempt.

■ **METHODS.** The charts of 317 consecutive patients undergoing major surgery and routinely receiving osteopathic manipulation postoperatively were reviewed. The number developing postoperative adynamic ileus was ascertained and the per cent of incidence calculated.

In a subsequent series of 92 consecutive major operations, the patients did not receive osteopathic manipulation postoperatively. The number developing postoperative adynamic ileus was ascertained and a per cent of incidence calculated.

In evaluation of adynamic ileus, the following criteria were used:

1. Presence or absence of bowel sounds.
2. Presence or absence of abdominal distention.
3. Presence or absence of tympany to percussion of the abdomen.
4. Presence or absence of flatus being passed per rectum.

When, on the basis of the listed criteria, the diagnosis of adynamic ileus was established, the patient was treated in the following manner. With the patient supine, intermittent pressure was applied to the paravertebral tissues of the lumbar and lower thoracic spine, producing extension of those areas, in addition to the deep pressure. This was done for approximately two minutes. The treatment was repeated every two hours. Each patient was periodically re-examined to observe the effect, if any, the therapy had had on the criteria used for the diagnosis of postoperative adynamic ileus.

It is essential to note that tight abdominal binders, tight dressings, and other mechanical impediments to the respiratory cycle were carefully avoided in both groups of patients.

■ **SUMMARY OF RESULTS.** One case of ileus was noted in the series of 317 patients receiving osteopathic treatment postoperatively. This represents an incidence of 0.3 per cent.

Seven cases of ileus were noted in the series of 92 patients not receiving osteopathic treatment postoperatively. This represents an incidence of 7.6 per cent. In these seven cases, the age range was from 9 to 73. Demonstrable results were obtained in six cases; no improvement was noted in one. Of the six cases showing improvement, the average time for resumption of bowel sounds was found to be 5.7 hours; the range being from 2 to 12 hours. The average time for the passage of flatus per rectum was found to be 8.0 hours, with the range being 1.5 hours to 24 hours. The average duration of treatment was 3 days, with the range being from 1 to 5 days.

■ **CASE SUMMARIES.** *Case 1.* A 17-year-old girl had a combined pneumothorax following chest trauma. Double tube thorocostomy drainage was instituted. Adynamic ileus developed on the fourth postoperative day, with all criteria present. Active peristaltic bowel sounds were heard within a few minutes after the first treatment. Flatus was being passed freely in 90 minutes. Distention, tympany, and discomfort had disappeared in 12 hours. The treatment was discontinued in 24 hours.

*Case 2.* A 41-year-old woman underwent emergency cesarean section. A stormy postoperative period complicated by and partially due to severe electrolyte and acid-base disturbance followed. Adynamic ileus developed on the third postoperative day. All criteria were present. Treatment was started, but no improvement of symptoms was noted in 24 hours. Conventional treatment was then instituted, also without results. The patient responded only after the electrolyte imbalance was corrected.

*Case 3.* On a 17-year-old boy, laparotomy was done for a ruptured appendix with generalized peritonitis and associated small bowel volvulus. This patient developed adynamic ileus on the fourth postoperative day. All criteria were present. Active bowel sounds were noted within 12 hours after the first treatment. Flatus was passing after 24 hours. Oral feedings were resumed in 48 hours. Distention and tympany were corrected in 48 hours. Treatment was discontinued after 72 hours.

*Case 4.* In a 48-year-old man, adynamic ileus developed on the third postoperative day after secondary closure of a wound dehiscence which followed an uncomplicated cholecystectomy. All criteria were present. Subjective relief to this patient was very marked following the first treatment. The resumption of active bowel sounds and the passage of flatus was noted in less than 2 hours. Softening of the abdomen, decreased tympany, and decrease of discomfort were noted in 4 to 6 hours. However, it was necessary to continue treatment for 3 days before the ileus was completely obviated.

*Case 5.* In a 73-year-old man, adynamic ileus developed on the fifth postoperative day following open exploration of the stomach. In addition to the listed criteria, nausea and overflow regurgitation were present. Active bowel sounds were present and flatus was being passed 4 hours after starting treatment. In 12 hours, nausea and regurgitation had ceased and the patient was able to take food orally. Abdominal distention, tympany, and discomfort were diminished in 12 hours. Treatment was stopped after 48 hours.

*Case 6.* In a 9-year-old boy, adynamic ileus developed with all criteria present on the fourth post-

operative day following an appendectomy. The appendix had perforated, but peritonitis had not been present at the time of surgery. Active bowel sounds and passage of flatus were noted in 4 hours. Relief of distention and discomfort was accomplished in 24 hours. Oral feedings were resumed in 48 hours. Treatment was discontinued after 72 hours.

*Case 7.* In a 57-year-old man, adynamic ileus developed on the fourth postoperative day after re-exploration of the abdomen following original emergency subtotal gastric resection and gastrojejunostomy. All criteria were present. Bowel sounds and passage of flatus were noted 12 hours after treatment. The patient reported substantial subjective relief in 48 hours. Treatment was continued for 5 days. However, completely normal bowel function was not established within a 2-week period. This was probably due to the presence of a large amount of intra-abdominal fluid.

■ **CONCLUSIONS.** The extremely low incidence of postoperative adynamic ileus in patients routinely receiving osteopathic manipulative treatment, as compared to the group not receiving treatment, suggests a prophylactic value of manipulation for the postoperative surgical patient.

The response to manipulation after the development of ileus suggests the therapeutic effect in this condition.

The increased comfort to the patient brought about by deleting the nasogastric tube and/or periodic injections cannot be calculated, but it should not be overlooked.

It is possible that postoperative adynamic ileus does not represent a true paralysis of the small bowel, but is the result of reflex hyperactivity of the sympathetic nervous system. It would appear that osteopathic manipulation is of definite value in the treatment of postoperative adynamic ileus by aiding the restoration of normal sympathetic-parasympathetic balance.

■ **SUMMARY.** Postoperative adynamic ileus remains an enigma. Probably many unknown factors are implicated in its development. This paper suggests that osteopathic manipulative treatment has a definite role in the prevention and treatment of postoperative adynamic ileus.

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