work, and in many instances comes to maintain a sort of existence which involves large financial responsibilities. However much such a man might desire to avail himself of the fascinating opportunities offered by the directorship of a large medical clinic, it is too commonly the case that, by the time he has well entered upon his fifth decade he has already assumed responsibilities toward others which make it impossible for him rightly to abandon the source of his income. But this, it seems to me, is not the essential feature of the situation. Is the physician who through years of practice has become the successful consultant, the man who is best fitted to direct a large department of medicine or surgery? By no means always. Indeed, in the majority of instances, it is another course of life which should best fit a man for a university professorship.

There has arisen gradually in this country a new class of consulting physician, the man who has deliberately planned his career from the outset, who has sought through long years of study in hospital and in laboratory, in association with large clinics, to gain in a concentrated fashion, as it were, that experience which may make his clinical opinion, both from a diagnostic and therapeutic standpoint, most valuable. Long-continued service in institutions in which proper opportunities for study and research are offered, is giving to the public today a number of men who, while thoroughly trained and practised in modern methods of diagnosis and treatment, have accumulated, at a relatively early age, a store of actual clinical experience such as is acquired in independent practice only after a much greater time and, in the majority of cases, with a loss of touch with some of the more recent advances in medical science. These men, the products of intelligent methods of hospital management and organization, are as a rule soon called on by their colleagues in more active practice for advice and assistance as general consultants. Men who have pursued such a career, which has inevitably involved at the outset a considerable financial sacrifice, are usually men of scholarly tastes who keep in touch with laboratories in which they may continue research and co-operate with their colleagues in practice in the study of the na-

ture and treatment of diseases. It is from this class of men that the professorships of medicine are more and more likely to be filled. Such a man may well enter upon a professorship by the time, or even before, he is forty years of age.

(Concluded in next issue)

THE MEDICAL TREATMENT OF GASTRIC AND DUODENAL ULCERS*

BY SEALE HARRIS, M.D.,
Birmingham, Ala.

The statement of Moynihan that ulcer of the stomach or duodenum is amenable only to surgery, has been echoed so widely by some American surgeons that it seems timely and advisable to discuss the medical treatment. I am quite sure that great harm has been done by this teaching of enthusiastic surgeons, who do not see and know of the many cases that are permanently cured by dietetic and medical means.

I would not be misunderstood as intimating that ulcer of the stomach or duodenum is not at times a surgical condition, because no one more than I realizes that frequently there are definite indications for surgical interference. I am convinced that the great majority of cases are cured medically, and that in no case, except where there is an emergency complication such as perforation or severe, repeated and uncontrollable hemorrhages, should surgery be resorted to until the patient has been given the opportunity for cure by dietetic and medical methods. Every gastro-enterologist whose views I have heard, holds to the same opinion.

The pessimistic viewpoint of surgeons regarding the curability of gastric and duodenal ulcer comes from the fact that they see only the advanced cases, and they have referred to them for operation the patients in which there are complications; while the physician usually treats and cures the mild and uncomplicated cases.

Friedenwald and other gastro-enterologists of large experience report seventy-

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five per cent of gastric ulcers cured by medical treatment. My results accord with these reports. In the past nine years in my private work I have treated more than 5,000 cases of digestive disease. I estimate that at least ten per cent., or more than 500, had ulcer of the stomach or duodenum; and I am quite sure that at least three-fourths of them were cured,—some of them under the most unfavorable circumstances. Probably fifteen per cent. more were benefited but had recurrences, and about fifty cases were operated upon. Hemorrhages occurred in probably 25 cases (fatal in only 1), perforation in 2, and in 3 the transition from ulcer to carcinoma was observed. A number of patients who consulted me and were found to have carcinoma of the stomach, gave a history which indicated previous ulcer, but in the great majority of cases of gastric cancer no such history could be elicited. Therefore, in my experience, which is not different from others engaged in the same line of work, the serious complications of gastric and duodenal ulcer have been infrequent and the results from the dietetic and medical treatment so favorable, that I believe this method should always be faithfully tried before surgery is considered.

It has been my misfortune to see at least 25 cases in which gastro-enterostomies had been performed without benefit to the patient, or in which there had been temporary relief but recurrence of the symptoms.

Gastro-enterostomy does not place the patient in any better condition for a cure than medical treatment, except when there is very marked organic stenosis of the pylorus, hour glass stomach, or when there are adhesions which prevent gastric peristalsis. Cannon and Blake have proved that gastro-enterostomy is not a drainage operation, that with a patent pylorus the food passes through the natural channel and but little goes through the stoma. Just how much the opening of the stomach into the jejunum perverts gastric and intestinal function we do not know; but examinations of the stomach contents of my patients who have had gastro-enterostomy performed have shown in nearly every instance the presence of bile and other intes-

tinal contents. One patient, who had a gastro-enterostomy ten years before he came under my observation, had bile present in his stomach at each of several examinations, when fasting, and after the Ewald test meal.

Cohnheim observed a deficiency of mucus in the stomach contents of patients with gastric ulcer and he suggested that the pain of ulcer was due to the lack of mucus, thus permitting the hydrochloric acid, which is usually excessive in ulcer, to act upon the exposed nerve terminals. It has occurred to me that the relief of pain after gastro-enterostomy was due to the regurgitation of bile and intestinal mucus, coating over and protecting the ulcer in addition to neutralizing the hydrochloric acid in the stomach. The same result can be accomplished by diet and by the administration of alkalies without permanent perversion of gastric function and without submitting the patient to a serious operation.

I know of no operation in surgery that gives more brilliant results when indicated than gastro-enterostomy, and I know of nothing which is more abused and which threatens to place gastric surgery into more disrepute than the furor operativus ulcus ventriculi. This operation should never be performed without a thorough knowledge of the motor and secretory functions of the stomach. And after entering the abdomen, if the pylorus is found patent or gastric peristalsis is not interfered with by adhesions, the wise surgeon does not perform a gastro-enterostomy but examines the gall-bladder and appendix.

Surgeons and gastro-enterologists should not be lined up against each other like opposing football teams; but should work together, each recognizing the fact that there is a field for the other in the treatment of gastric and duodenal ulcer. It is only by team work that the best results are obtained. Even when the operation is performed, as soon as all danger from the operation is over the ulcer patient should be under the care of the medical man, who is best prepared to prescribe the proper diet and regimen for the patient to prevent recurrences.

I am convinced that one of the reasons for the frequent failure to cure ulcer after

operation has been the errors in diet as prescribed by the surgeon. I have been astounded by the diet that has been prescribed to patients after gastro-enterostomy by some of the leading surgeons of the country. I have known such patients to be permitted to get out of bed in ten days and a full diet allowed after two weeks.

It may be appropriate to state here that the diet and treatment after gastro-enterostomy or pyloroplasty, or resection of the ulcer, should be the same as when treated medically, except that feeding by the mouth should not be begun before the third or fourth day after the operation.

The early diagnosis of ulcer of the stomach or duodenum is of as much importance as the early diagnosis of tuberculosis, because if treated properly before the chronic inflammatory changes have continued too long the ulcer heals with but slight cicatrix, and the cure is apt to be permanent; whereas in the old neglected cases it is much more difficult for the ulcer to heal and recurrences are more frequent. The same dictum that applies to suspected tuberculosis should hold in suspected ulcer, viz., the case should be treated as if a positive diagnosis were made.

It is remarkable, however, even in the old neglected cases, how the symptoms are relieved and the patients entirely relieved by medical treatment. Sippy¹, in the most notable recent article on gastric ulcer, calls attention to the fact that many cases of gastric and duodenal ulcer are relieved in which the X-ray showed almost complete pyloric stenosis and in which there were other symptoms of organic obstruction. The patients were restored to complete health and the X-ray showed a larger opening of the pylorus, and the stomach emptied itself in the normal time. His explanation of this apparently impossible phenomena is that with the healing of the ulcer the edema and round cell infiltration disappear, leaving a thin scar with a larger opening at the pylorus.

I shall not discuss the question of diagnosis of ulcer, but will say that we are indebted to the surgeons for being positive that ulcer of the stomach and duodenum, particularly the latter, are much more frequent than we formerly supposed. We

have learned that it does not take a gastric hemorrhage to make the diagnosis of gastric or duodenal ulcer, because more than ninety per cent. of cases have not a history of hematemesis. A positive diagnosis is not possible in every case, but, as I have said, when ulcer is suspected it should receive the same treatment as if the diagnosis were positive.

The treatment of gastric and duodenal ulcer should be thorough and systematic with attention to details, which accounts for success in any undertaking. Absolute obedience of the patient is important, and happily ulcer patients can be depended upon to give the most intelligent co-operation with the physician.

Rest in bed for a period of three or four weeks should be insisted upon and the patient should be under direct observation from six to eight weeks and should report symptoms to his physician for six months or a year, whether the patient is treated medically or surgically. I have, however, treated a number of ulcer patients, who have carried out a modified treatment while attending to their regular duties, and who were apparently cured; but this should never be done when the patient can get the three or four weeks in bed.

I am not sure that local applications to the abdomen are of any value, but it is almost a routine to keep a light ice bag over the epigastrium most of the time, or at least enough to keep the skin red during the day. The ice bag is said to relieve pain, to prevent pylorospasm, gaseous distention and hemorrhage. I am inclined to the belief that its effects are largely psychic. The Priestnitz compress over the abdomen serves the same purpose. Ziemssen employs warm application to the abdomen.

Oral hygiene is important. The teeth and mouth should be cleansed several times a day with a solution of bicarbonate of soda, magnesia or other alkaline powders. I frequently advise the liquor alkalinus antisepticus of the National formulary, 1 part to 8 of water, for cleansing the teeth. The gums should be thoroughly examined for pyorrhea alveolaris with pus pockets, and if present the emetin hydrochlorid treatment should be used and the local infection treated by the dentist.

Rosenow has demonstrated that ulcer of the stomach in many instances may be due to infection from the oral cavity and from inflamed tonsils by swallowing the organisms; or the infection may be of hemic origin from these and other distant foci. When such a cause can be discovered it should be removed. It is surprising how ulcer symptoms will sometimes subside after removal of infected tonsils.

The diet is of greatest importance and should be carried out thoroughly and systematically. A modification of the Lennhartz method has given me most satisfactory results over a period of nine years. It is based upon the physiological principles of giving frequent feedings of small quantities of concentrated food to combine with the hydrochloric acid, without over distension of the stomach, yet of sufficient food value to build up the patient and thereby promote healing of the ulcer.

I have simplified, modified and Americanized the Lennhartz diet so that it can be carried out with greater accuracy by the average nurse or attendant than that which was originally advised. The Lennhartz diet consists principally of eggs, milk, cane sugar, scraped beef, raw ham, rice and zweibach, which are separately prepared and given in definite quantities, expressed in grams, every hour from 7 A. M. till 9 P. M. for ten days.

I have the nurse prepare enough of a mixture in the proportion of 1 egg and 1½ ounces of cream to 4 ounces of milk and give it every hour from 7 A. M. to 7 P. M., in gradually increasing quantities, beginning with ½ ounce the first day and increasing ½ ounce each day. It requires 6 days to get up to 3 ounces at each feeding, and the quantity is kept at 3 ounces for four days. From the seventh to the tenth day a soft cooked egg and two tablespoonfuls of strained oatmeal may be given with the feeding at 7 A. M. and 7 P. M., and at 1 P. M. two tablespoonfuls of scraped beef lightly broiled and two tablespoonfuls of thoroughly cooked rice with butter.

After ten days until the fifteenth day, 3 ounces of the egg, milk and cream mixture are given at 9 and 11 A. M. and 3 and 5 P. M.; and 2 ounces of strained oatmeal with cream and sugar, and 1 or 2

thin slices of dry toast and 2 soft eggs for breakfast at 7 A. M. and supper at 7 P. M.; and chopped or minced chicken or scraped beef, dry toast, rice and ice cream or gelatin at 1 P. M. Butter is allowed after ten days. Beginning with the fifteenth day and for two months, the patient should have small meals three times a day with an egg and goblet of milk between meals and at bedtime.

It is surprising how the pain and discomfort is relieved by giving ½ ounce of the egg, cream and milk mixture every hour, and since the small quantities give rest to the stomach I am quite sure that it is best to begin with small feedings and each day gradually increase the amount. The patients will gain in weight, the anemia will subside, and the strength of the patient will be built up very rapidly on this diet. In a few instances the mixture has disagreed with the patients when the quantity of food would be reduced for a few days. This diet may be begun in 48 hours after a hemorrhage and in three or four days after a gastro-entrostomy. In the meantime the patient may receive some nourishment by the rectum.

MODIFIED LENHARTZ ULCER DIET

- First Day—1 egg, 1½ 3 cream, 4 3 milk. Mix and give ½ 3 every hour from 7 a. m. to 7 p. m. Total calories approximate 300.
- Second Day—2 eggs, 3 3 cream, 8 3 milk. Mix and give 1 3 every hour from 7 a. m. to 7 p. m. Total calories approximate 600.
- Third Day—3 eggs, 4½ 3 cream, 12 3 milk. Mix and give 1½ 3 every hour from 7 a. m. to 7 p. m. Total calories approximate 900.
- Fourth Day—4 eggs, 6 3 cream, 16 3 milk. Mix and give 2 3 every hour from 7 a. m. to 7 p. m. Total calories approximate 1,200.
- Fifth Day—5 eggs, 7½ 3 cream, 20 3 milk. Mix and give 2½ 3 every hour from 7 a. m. to 7 p. m. Total calories approximate 1,500.
- Sixth Day—6 eggs, 9 3 cream, 24 3 milk. Mix and give 3 3 every hour from 7 a. m. to 7 p. m. Total calories approximate 1,800.
- Seventh to Tenth Day—6 eggs, 6 3 cream, 20 3 milk. Mix and give 3 3 at 8, 9, 10, 11, 12 a. m. and 2, 3, 4, 5, 6 p. m., and at 7 a. m. and 7 p. m. give two tablespoonfuls strained oatmeal, 2 3 cream, level teaspoonful sugar and 1 soft boiled egg; at 1 p. m. 1 rounded tablespoonful scraped beef, lightly broiled, 1 heaping tablespoonful of rice and 3 3 milk. Total calories approximate 2,100.

Eleventh to Fourteenth Day—Breakfast, at 7 a. m., and supper, 7 p. m., 2 soft boiled eggs, 1 slice of toast, 1 pat butter, 3 tablespoonsful strained oatmeal or cream of wheat, 3 5 cream, teaspoonful sugar. Dinner, at 1 p. m., 2 tablespoonsful scraped beef or minced breast of chicken, 2 slices dry toast, 2 heaping tablespoonsful of rice, butter and 2 tablespoonsful ice cream, 1 egg, 1 5 cream and 3 5 milk at 9 and 11 a. m. and 3 and 5 p. m.
Total calories 2,800.

Fifteenth to Twenty-first Day—Same as from eleventh to fourteenth days except that the amount of cereal, cream and chicken or beef may be increased, baked Irish potato may be substituted for rice, and gelatin or boiled custard for ice cream. One egg, 1 5 cream and 4 5 milk should be given at 10 a. m. and 4 p. m.
Total calories approximate 3,000.

From the Third to Sixth Week—The diet should be the same as in the third week except that strained orange juice may be given for breakfast and purees of peas, beans and potatoes may be given for dinner. Soft green vegetables mashed through cloth or sieve may be added.

Total calories approximate 3,500.

Note.—The egg, milk and cream mixture should be kept in a covered dish with ice packed around it. The amount for each feeding should be given slowly and with a spoon, and with the same exactness and regularity as if it were medicine.

The scraped beef should be made into a patty and lightly broiled with a little butter and salt.

The rice and oatmeal should be cooked for several hours.

The dry toast should be in slices about $4 \times 1 \frac{1}{2}$ inches in size. The crust should be removed and the patient instructed to chew it until it becomes liquid with the saliva.

After the sixth week and for a year after treatment the ulcer patient should follow the diet indicated in hyperchlorhydria. It should be highly nutritious, from 3,000 to 3,500 calories, because the building up process in ulcer is as important as in tuberculosis. I have been impressed with the fact that ulcer, like tuberculosis, occurs most frequently in individuals, who were poorly nourished before the ulcer symptoms first appeared and if recurrences would be prevented the ulcer patient must be kept on a highly nutritious but well balanced diet. He should avoid highly seasoned foods. Pepper, spices, condiments and pickles should be eliminated from his dietary; as should also hot bread and fried foods, most sweets, as pies, cakes, syrup, etc., tough meats; corn, fruit and vegetables that contain hard seed or tough skins. Coffee, tea, coca-cola and other caffeine beverages, wines, liquors, beer or other alcoholics

since they increase gastric acidity should be tabooed by the recovered ulcer patient. Tobacco, in any form, should not be used for the same reason.

In cases where there is retention of food, lavage with a solution of sodium bicarbonate, 5 iv. to two quarts of water, is given at 9 P. M.; and if there is excessive secretion as in gastro-succorhea, which is sometimes associated with ulcer, lavage is given in the early morning one-half hour before beginning the nourishment.

Lenhartz advised bismuth subnitrate in drachm doses, suspended in water 1 hour before beginning the food. There is some difference of opinion as to how the bismuth acts and as to whether or not it has any effect. It has been shown by the X-ray that bismuth will remain in the crater of the ulcer after it has passed out of the other parts of the stomach, and it may thus have some effect in protecting the ulcer. Aaron thinks that the bismuth subnitrate is broken down with the liberation of nascent nitric acid which acts as an antiseptic, stimulant and astringent to the ulcer, thus promoting healing. One observer has shown that bismuth in any form causes the secretion and pouring out of gastric mucus, which Cohnheim has shown to be deficient in gastric ulcer, thus protecting the ulcer from the irritating effect of the hydrochloric acid which is usually present in excess. At any rate the bismuth seems to be helpful. I give 1 drachm of bismuth subnitrate on the empty stomach in the morning and the subcarbonate in 30 grain doses, alternating with drachm doses of soda between each feeding. If there is constipation the oxid of magnesia is given in 10 to 20 grain doses with the bismuth or sodium bicarbonate four times a day. In some cases, particularly with the nervous patients, I give strontium bromid grains 10 in mint water two or three times a day.

Should hemorrhage occur in ulcer of the stomach or duodenum the patient should be kept absolutely quiet, in bed. Thirst may be allayed by cracked ice and rinsing the mouth with water. Fluids can be supplied by giving physiologic salt solution per rectum by the Murphy drip method. A light ice bag should be kept over the epigastrium, at least during the day. Bismuth subnitrate, drachms 2, suspended in

one ounce of water may be given once or twice a day. It acts as a gastric sedative and seems to favor clotting. In most cases the hemorrhage will stop simply by keeping the patient quiet.

If the patient is restless and alarmed on account of the hemorrhage, or if vomiting and retching are pronounced, $\frac{1}{4}$ grain of morphine sulph. or $\frac{1}{2}$ grain of codeine phosphate should be given and repeated every three or four hours if necessary to control vomiting. Ordinarily one dose is sufficient. Emetine hydrochloride in $\frac{1}{2}$ grain doses may be administered hypodermatically twice a day for two or three days. 50 c. c. of a sterilized 10 per cent gelatin solution may be given subcutaneously and repeated two or three times a day if the hemorrhage continues. If there is much loss of blood transfusion may be resorted to. This, when indicated, not only supplies the patient with needed blood but seems to have some effect in stopping the hemorrhage. Serum, since it contains the fibrin ferment necessary for clotting blood, preferably given intravenously, seems to be useful in gastric hemorrhage. Fresh human blood serum is best but horse serum may be used. It is sold in sterile containers, containing ten to twenty c. c. Diphtheria antitoxin, since it contains horse serum, has been used in an emergency when the plain serum could not be obtained. Ergot, hydrastin, adrenalin, iron and a number of other drugs have been used for many years but I have discarded those mentioned because I do not think they are indicated physiologically and I have not seen any beneficial results from any of them.

Kauffman, of New York, employs lavage with good results in gastric hemorrhage. It must be carefully applied and should not be used if there is much retching from the use of the stomach tube. It would seem that lavage would be useful in preventing over distension of the stomach by removal of the blood clots and that it would also prevent the fermentation and putrefaction of the blood which occurs if the hemorrhage is retained too long either in the stomach or intestines; but I have never had the courage to introduce a tube into a bleeding stomach. If there has been sufficient erosion in a gastric ulcer to open up a blood vessel, perforation may also be im-

minent and even a soft rubber tube, it seems to me, might tear through the thin tissue that separates the bottom of the ulcer from the peritoneal cavity.

Enemata of hot water (115° to 120° F) about a pint at a time and repeated three times a day remove the blood from the intestines and prevent the toxemia which comes from the decomposition of blood if retained too long.

Nutritive enemata should not be given because they may bring on gastric peristalsis. Lenharz began feeding ulcer patients within twenty-four hours after a hemorrhage. Following his teaching I formally did so, but in one case it seemed to bring on a return of the hemorrhage. Since then I begin the modified Lenharz diet in 36 to 48 hours after the hemorrhage and have not seen the slightest trouble from it.

In treating gastric and duodenal ulcers either medically or surgically it should be remembered that it is a secondary condition with which we are dealing, and one which is likely to return unless the underlying causes are sought for and removed. Focal infections in the teeth, tonsils, gall bladder, appendix, or in any part of the body may be the exciting cause; but a localized area in the stomach must be the locus minoris resistentiae, and there are also predisposing causes to be sought for. Careful questioning of ulcer patients will usually bring out a history of gross errors in diet or in habits of living; and they are the same as those we find in patients suffering from hyperchlorhydria, which is usually seen in ulcer, and which I believe nearly always precedes it. Rapid eating, insufficient mastication, over eating, the ingestion of coarse foods, hot drinks, alcohol, coffee, tea, coca-cola and other caffeine beverages, the excessive use of tobacco, over-work, worry, grief, fear or other cause of functional hyperchlorhydria must be looked after.

The particular error or errors in diet and living must be pointed out to the patient and he must be taught how to live in order to prevent the recurrence of ulcer. In my opinion one of the reasons why surgery so often fails is that the patient believes that the operation is all that is needed to restore him to complete health and he goes back to the same method of living

that brought on the ulcer in the beginning. The ulcer patient should be made to know that for a year or two, and probably for the rest of his life, he must lead the simple hygienic life if he hopes for health.

I regard the ulcer patient as a teacher looks upon a pupil, i. e., one to be taught—taught personal hygiene with particular reference to avoiding errors in diet; and I make the daily effort to instruct him how to live in order to enjoy health and efficiency. Psychotherapy, particularly the DuBois method of re-education, should be practiced in dealing with ulcer patients, because there is usually the psychasthenic element present. It is the careful attention to every detail that gives best results in the medical and dietetic treatment of gastric and duodenal ulcers.

DISCUSSION

Dr. Allan Eustis, New Orleans, La.—It was with more or less hesitation that I accepted Dr. Harris' invitation to discuss his paper, because I am so radically opposed to the medical treatment of gastric ulcer, although I am an internist. However, I believe only by free discussion can we arrive at the correct position in this matter.

Five years ago I was as enthusiastic over the medical treatment of peptic ulcer as any one in the profession. I followed a great many of these cases to the operating table and post-mortem room, and found so many clinically healed ulcers, showing definite old ulcer which had ceased to bleed, or carcinoma, that I have altered my ideas of ulcer of the stomach.

I had the embarrassing experience of having a young girl laparotomized, whom I treated several years ago, keeping her up on nutritive enemata for two weeks, followed by a modified Lanhartz diet for a month, with a clinical cure, meaning by that freedom from symptoms and absence of occult blood in the stools. Dr. Williams, who performed an exploratory laparotomy some three years later, for a return of gastric symptoms, found an indurated ulcer, evidently of long standing.

I had another case in which I had also treated the patient for ulcer of the stomach and pronounced a clinical cure. I observed her for more than a year, during which time there was no more occult blood. She came to see me two years ago with a large mass in the epigastrium, and she has since died of carcinoma.

I think we as internists assume an enormous responsibility in connecting ourselves with the medical treatment of these cases. There are two points which I wish to know, as I can not tell: When is an ulcer cured? And, secondly, when does the ulcer take on malignant changes?

MacCarthy, in his admirable work at the Mayo Clinic, says that many cases of ulcer clinically and macroscopically have been shown histolog-

ically to have already taken on malignant changes. Healed ulcers, even, have shown beginning malignant changes underneath the scar tissue. He considers the inclusion of epithelial cells as a potent factor in causing malignancy, as these cells may undergo mitosis and become the starting point of a malignant tumor of the stomach.

For the last four years I have felt so strongly about this matter that I refuse to treat cases of ulcer of the stomach medically except preparatory to surgical interference. On the other hand, I will not admit that the surgeon can do any better than we do, unless he excises the ulcer, as the Mayos do at the present time, as I do not believe that gastro jejunostomy will do any more than medical treatment of ulcer of the stomach. Until we get rid of these included epithelial elements, we will have a constant tendency to the development of cancer; and after all, that is what we are striving for, to lessen the incidence of carcinoma of the stomach.

As far as the medical treatment of ulcer is concerned, I can not add anything to the admirable paper of Dr. Harris; he has covered everything. I rely principally upon nutritive enemata and allow nothing by mouth, in some cases giving glucose by hypodermoclysis.

There is one objection to the Lanhartz diet, and that is the early administration of milk, which I think is to be avoided. Sweet milk forms a heavy curd, and if you attempt to treat ulcer medically the sweet milk should have as a substitute something that will get out of the stomach quicker than two hours. I prefer in these cases either buttermilk, or better, grape juice and raw eggs.

Dr. Louis Leroy, Memphis, Tenn.—The remarks concerning the constancy of gastric ulcer as a surgical disease are in accordance with the facts very much as I have seen them. But another point must be considered in the medical as well as in the surgical treatment of this malady. The first is to attempt to ascertain if we can some of the causes which make possible the development of the first ulcer. If a simple gastro-jejunostomy is done and nothing more, the ulcer tissue may remain; cell inclusion may remain and become malignant, as Dr. Eustis says. However, many cases that are operated upon fail to get well and still persist in having symptoms, and after operation may develop subsequent ulceration.

No surgical method is adequate in the radical cure of gastric ulcer that does not consider other areas of the gastrointestinal tract, especially those in the neighborhood of the ileo-cecal region. Adhesions and other evidences of inflammation, misplacements, etc., will, by reflex action upon the pylorus, tend to maintain the hyperacidity and tend to maintain those conditions which favor, if they do not determine, the original development of the ulcer; and the reason perhaps why medical treatment is frequently inadequate and that ulcer apparently medically healed will return, is because we do not take into consideration those things which produce or lead to the development of ulcer in the first place. If we are going to maintain a chronic appendiceal irritation

or an irritation in the ileo-cecal region, we will maintain a reflex contraction further up.

If we have ptosis, perhaps, or other obstructive agencies from within or from without, the liability to the development of a new ulceration or to reulceration of the old area, is going to make the medical treatment perhaps not permanent. The fact, however, that some cases go on to ulceration or to cancer is not sufficient reason for submitting every case to a surgeon, because many of these patients who unquestionably come to us medically and are treated get well and never go on to cancer or have a return. It is almost certain that the majority of gastric ulcers are cured either with or without the assistance of the physician just as we now know that the majority of tuberculous infections are cured with or without the assistance of the physician. Just because some of them go on to a fatal or unfavorable termination is no argument against making an attempt to cure some of them.

After reasonable attempts have been made and have failed, and after recurrence, I grant you surgical intervention gives us our only means. Many of these surgical attempts are successful where the internist has failed, but we should by no means think that surgery is always successful, and it will not be successful unless the gastrointestinal tract is explored as well as the ulcer and the pylorus.

Dr. Arthur W. White, Oklahoma City, Okla.—The elder Jacobi, in discussing this subject five years ago, said that we can not make a funnel out of the stomach; that subsequently it has been demonstrated clinically and experimentally that gastro-jejunostomy does not facilitate the emptying of the stomach; that the stomach does not empty itself any more rapidly after a gastro-jejunostomy than the normal stomach. Furthermore, Sippy and one or two others recently have shown that the continuance of the presence of gastric ulcer is due to the free hydrochloric acid; that whatever the original cause may have been, it does not matter so much, because it is the presence of the free hydrochloric acid. Hence it is the correction of the free hydrochloric acid that enables the ulcer to heal, and the tendency is for it to heal of its own accord.

Weinland has demonstrated that the antibodies in the mucosa protect the mucosa of the stomach from the action of the free hydrochloric acid. But under certain conditions, which he could not explain, the antibodies fail to perform their function. If gastro-enterostomy is done, it has no effect upon the stomach except to increase the mucus. Pavlov has demonstrated that hydrochloric acid and pepsin are always in proportion in the normal stomach. Cohnheim and MacCarty have demonstrated that in early gastric ulcer the hydrochloric acid cells become more active and the pepsin cells less active relatively. In carcinoma the reverse is true. There is no early change in the cell in beginning ulcer of the stomach. Consequently the correction of the free hydrochloric acid will give the ulcer a chance to heal. That can be done by frequent feeding and by the use of alkalis as demonstrated in the pa-

per. I do not favor the use of meat so much, especially in the early cases, or proteins from the fact that proteins, lean meats, are prone to stimulate to the greatest possible extent in quantity the secretion of free hydrochloric acid. Milk is, to my notion, ideal.

Sippy has done probably the greatest work along this line of any man in America, and possibly in the world, and following his work and using his management, or a modification of it, we get most excellent results. I think the recurrences with intelligent management are far less in number than recurrences following surgery, even if the ulcer be excised, because of the fundamental physiological condition in the stomach.

Dr. J. W. Torbett, Marlin, Tex.—Graham, in a recent article in the Journal of the American Medical Association, points out the fact that it is very important in the diagnosis of gastric ulcer, especially in all the surgical cases, that they have had several recurrences, and to prevent these recurrences if possible after the first attack is the thing. The medical man sees these cases in the first attack. Dietetics, I think, is a great factor in this treatment. Pavlov has shown by his experiments that meat and meat extractives cause excessive secretion of hydrochloric acid; and also that the use of cane sugar stimulates an excessive secretion of hydrochloric acid more than the stomach can utilize; and as Dr. White has said, we want to neutralize and reduce the irritating effect of the hydrochloric acid. The cases that have the first attack and are treated medically must be kept all their lives on a low protein diet, with a low amount of cane sugar if you want to prevent recurrence. And milk, if it agrees with these patients, is an important article of diet.

Turck pointed out several years ago that meat extractives are especially the things that stimulate the secretion of hydrochloric acid, and that if meat is soaked in water before use, a small amount of meat can be used as an article of food after the cases are cured. The great mistake has been made that patients have not been kept on a low protein, low cane sugar diet after once having been cured.

Dr. Frank A. Jones, Memphis, Tenn.—The more I study the diseases of the right upper quadrant of the abdomen, the more I become convinced that it is most frequently the region of diagnostic doubt, fear and tragedy.

There is one question that is very important in connection with this subject, and that is the differential or early diagnosis of these cases. The world was startled a few years ago by a statement from Moynihan, and he puts it in italics in his book on "Duodenal and Gastric Ulcer," that "chronic recurrent hypochlorhydria is duodenal ulcer." I never was prepared to accept that dictum and never will accept it from Moynihan. If we take Mayo Robson's work on "Diseases of the Gall-Bladder" and read his description of diseases of the gall-bladder and compare it with Moynihan's work on gastric and duodenal ulcers, we will find them running mates with reference to symptomatology. I have seen a diagnosis made both by the internal medical man and the sur-

geon of duodenal or gastric ulcer, a laparotomy advised, and at the operation neither a duodenal nor gastric ulcer was found, but the gall-bladder was full of gall-stones. I can recall a number of such instances, so I say in considering these cases we must be prudent and conservative. We must be critical and careful in our analysis of cases. I believe in the great majority of cases, particularly those coming under my observation in hospital work, in which we suspect duodenal or gastric ulcer, if we go more fully into an analysis of the cases we will find there is probably a condition or a diseased process in the gall-bladder. And if we exclude trouble existing in the gall-bladder, and go further down as Deaver recommends, we will find a little organ called the appendix that has been bucking for many years, and which is back of the whole process.

In recent years I have been forcibly reminded of the medical or food treatment of duodenal and gastric ulcer as advocated by B. W. Sippy,—beets and pickles, pork and cabbage,—making a lime kiln out of the stomach by giving freely bicarbonate of soda and a regular soap factory. Such is the treatment of duodenal ulcer with forced feeding.

Coming to the Lenhartz diet, a great many practitioners have run amuck over this treatment. If I could take the food that Lenhartz advises and appropriate it, and take as much as he advises, then I should say the duodenal ulcer did not amount to much. It will not kill me; it will not hurt me, if I could live on the food he gives. The food that Lenhartz advocates or that Sippy would advocate is the food for the laboring farm hand; and if patients can appropriate that food and take care of it, their duodenal and gastric ulcers do not amount to much.

I have noticed in the last year or two that the internal medical men are beginning to wake up to the fact in regard to gastric and duodenal ulcer as they did some years ago as to whether appendicitis was a medical or surgical disease. And the same question is before us today. You will probably recall that fifteen years ago if a man had appendicitis and was not doing well under medical treatment he was sent to a surgeon. But now the internists recognize the fact that appendicitis is purely and absolutely a surgical disease and nothing else.

Many of you doubtless remember Ben Jonson's famous article concerning snakes in Iceland. He said: "There are no snakes in Iceland." And there is no medical treatment for appendicitis.

Dr. M. L. Graves, Galveston, Tex.—I must confess that my own experience as an internist with gastric and duodenal ulcers has not been so satisfactory as that of the essayist, particularly from the standpoint of treatment, dietetic or otherwise.

The point emphasized by Dr. Jones that every effort should be made to discover some other forms of disease in which the symptoms are usually referred to the gastro-intestinal tract, is a very important point. Investigation should be made of the gall-bladder, the appendix, retrover-

sion of the uterus, ovarian and tubal diseases, and a number of other things of that kind.

I really must confess that I am badly up in the air in regard to the diagnosis of gastric and duodenal ulcer, and in regard to the treatment of it except in the chronic classical case.

Dr. Harris said something about determining exactly the secretory and motor function of the stomach in making this diagnosis. While I have tried to determine the secretory function of the stomach, and have found a few cases with a continuous hyperchlorhydria, such hyperchlorhydria leading me to suspect classical gastric ulcer, yet I have found ulcer in many other cases in which there was no hyperchlorhydria at all. And after the experience of the Mayo Clinic, in which they do not find 60% of the gastric ulcers showing hyperchlorhydria, I think we had better pause before making a diagnosis of gastric ulcer from the secretory function of the stomach alone.

As far as the motor function is concerned, much will depend upon the location of the ulcer, whether in the pyloric region of the stomach or in the first part of the duodenum, so that we would have obstructive symptoms before we could make a diagnosis of gastric ulcer. I have had a number of cases operated upon in which all the classical symptoms of hyperchlorhydria, of pain, localized tenderness, etc., confirmed by the X-ray examination, were present; and yet at the operation the surgeon was utterly unable to find anything in the stomach or duodenum. So I am more and more cautious as I grow older in that respect.

Another thing that has made me more cautious is that I have watched the autopsies for many years. And a few years ago, while in Berlin listening to Cohnheim's descriptions of curing working girls and men with gastric and duodenal ulcers by diet, I saw at least 100 cases in which post-mortem examinations were made in the Charity Hospital; but I never saw any scars of healed ulcers of the stomach in them.

In our hospital at Galveston I have gone over those cases for many years and followed them to autopsy, and very few of them showed any scars of healed ulcers in cases that we thought were ulcer of the stomach from clinical investigation. I believe many of these cases represent the neurotics and congenital myasthenics in which gastrointestinal symptoms are prominent, and yet in which the patients have no gastric or duodenal ulcer. And again, I have grown cautious about this for the reason that I have seen so many cases of gastric ulcer that have been reported cured by medical means that have gone ten to twenty years without recurrence, and in which within the last year I have seen one of these cases operated upon. This patient had a large ulcer of the stomach, and it showed practically that it had never been healed.

I saw a doctor of this State die a few years ago from duodenal ulcer that had perforated the pancreaticoduodenal artery and caused a fatal hemorrhage, although he was said to have been cured by medical means a few years ago in the City of Chicago.

I am very skeptical about the value of any die-

tetic or medicinal method of treatment in cases that have progressed beyond the acute stage. I grant you, simple erosions of the gastric mucosa, associated with hyperchlorhydria, with pain and localized tenderness, may be relieved by gastric lavage and duodenal feeding with a duodenal tube, but a well developed gastric or duodenal ulcer rarely responds to medical treatment.

In this connection I wish to call your attention to three cases of gastric ulcer within the past year that I diagnosed, and two of them were sent in for surgical operation, in which a large gastric ulcer was found, and within three or four days following a surgical operation, without previous history, except gastro-intestinal symptoms, such as one would ascribe to gastric ulcer, the patients broke out with a marked dermatitis with very red tongues and with every evidence of pellagra. Two of these cases were followed to autopsy, and I believe the University Pathologic Museum still has the specimens on hand. A third one was not operated upon, but was followed to autopsy and showed a well marked gastric ulcer. All three of these patients died with typical symptoms of pellagra.

Dr. A. L. Levin, Harvey, La.—One point was not made clear in the discussion, nor in the paper of Dr. Harris, namely, the question of the presence of hydrochloric acid. The various methods of dieting, whether we follow the school of fasting or feeding, is based upon the fact that pepsin will not act or dissolve albuminous substances except in the presence of hydrochloric acid. Cohnheim's theory as to the cause of gastric ulcer has not yet been proven, because if it depends upon a deficiency of mucus, and the consequent erosion of that particular spot by hydrochloric acid, why should we have ulcers in the mouth which we see in gastric disturbances so often? The entire treatment of ulcer by the various methods aims to reduce the hydrochloric acid so that pepsin would not dissolve the ulcerative area of the stomach.

With regard to the time mentioned, say six months or a year, during which the patient is watched carefully, Boas, a man who has had more experience in gastric and duodenal ulcer than any one of modern times, lays stress upon examination for occult blood. Repeated examinations for occult blood should be made. In fact, he makes it a point to differentiate between malignancy and benign ulcer. He advises even after the symptoms of gastric and duodenal ulcer have subsided under proper treatment, that occult blood be examined for repeatedly. If the ulcer has healed under proper treatment occult blood will be negative in ten days. In a month or two after the patient has been discharged apparently cured, if occult blood is present again, he advises that the patient be sent to a surgeon because he suspects then malignancy. That in itself is a very important and useful guide.

With regard to the point mentioned by Dr. Jones, we frequently see cases with gall-stones in which we have suspected the existence of ulcer. I think that point should be emphasized. Pain associated with or having direct relation to

food always means either gastric or duodenal ulcer. If there is epigastric pain and no relation to food, we may say that 90% of the cases are due to the presence of gall-stones.

I am sorry to disagree with Dr. Eustis, my former teacher, with regard to sending a patient with gastric ulcer to the surgeon immediately. I believe we should try to do what we can medicinally until symptoms show that we are doing no good or some complications arise. Then we can send the patient to a surgeon because we can have an idea what a tremendous shock it is to an individual when we examine him, without going into the details of medicinal treatment, to tell him it is necessary to open up the abdomen and remove the cause of his trouble. I am satisfied we can do great good with medicinal treatment in some cases. We know what Moynihan claims, that 72%, and the Mayos 62%, of malignancy is grafted upon the base of an old ulcer. But if we follow the advice of Boas and examine for occult blood, it would help us a great deal.

Dr. Estill D. Holland, Hot Springs, Ark.—I do not see any reason why we should operate upon the effect and not remove the cause. If a stomach has an ulcer, the prevalent opinion is that there is an increased acidity of the gastric juice, or a decreased resistance of the gastric mucous membrane which renders it susceptible to the action of the normal gastric juice. And if we operate upon such a stomach and remove the ulcer, which is the result of the abnormal relation of the gastric mucous membrane to the gastric juice, what permanent good can we hope for?

Why shouldn't a patient who is operated upon for a gastric ulcer develop another gastric ulcer in a few months or years?

It is common sense that a stomach, when ulcer has been healed by the removal of the cause through diet and treatment, is more apt to remain healed than it would be if the ulcer were removed by an operation which cannot affect the cause.

Surgical treatment cannot possibly cure the cause of gastric ulcer; and I think the good results gotten from operating upon gastric ulcer are due more to the diet and starvation before and after the operation than to the operation itself.

I think operation for gastric ulcer is the last resort and should never be done in the ordinary case. I also think that patients who have been operated upon for this condition are rendered much more liable to relapse.

Dr. Joseph E. Knighton, Shreveport, La.—I cannot agree with the idea that there is no medical treatment for gastric and duodenal ulcer as expressed by one or two of the gentlemen in this discussion.

I will report briefly one case which will serve as a demonstration of what may be accomplished by the treatment outlined by this paper. Mrs. W., age 43, consulted me first on June 6, 1915. She was a housewife; had three children, youngest six years old, and had had no miscarriages; complained of sour stomach, pain, nausea and vomiting. Had appendicitis 15 years ago without operation, and

had severe attack of what was regarded as gallstone colic five years ago. For the past six months she had been suffering pain in region of the stomach, sour stomach, nausea and vomiting. Usually the pain and nausea began two hours after meals, and continued until the following meal, which latter gave some measure of relief. More recently the discomfort had been almost continuously present. Had frequently vomited food that had been eaten 24 to 48 hours previously. No blood vomited, appetite good, bowels constipated, loss of weight from 110 to 75 pounds.

Physical examination showed violent visible peristalsis from left to right, and a tumor mass palpable in the epigastric region to the right of the median line. The stomach contents withdrawn an hour after eating an Ewald breakfast showed an amount greatly in excess of average quantity, with remnants of previous meals. Analysis showed free HCl .46; total acidity .82. Lavage after fasting overnight removed considerable food of the previous day's consumption with a high percentage of free HCl.

The attending physician had made a diagnosis of cancer with which I was inclined to agree, supposing that malignant changes had taken place at the site of an old pyloric or duodenal cancer.

This conclusion was based upon the fact that the gastric secretion was still maintained, as is frequently the case in such conditions. Surgical treatment was advised, but the patient refused it, so the treatment as outlined by Dr. Harris was given.

On September 3 I had an opportunity to see and examine the patient again, and found that she had gained 15 pounds in weight, was suffering no pain or nausea, retained all her food, and that the mass in the epigastric region was no longer palpable.

Dr. Seale Harris, Birmingham, Ala. (Closing)—I appreciate very much the very free discussion that my paper has brought out, although some of it has been adverse to the points mentioned. I do not wish to be understood as being opposed to surgery in gastric ulcer, because in about fifty cases, of the five hundred that I thought had gastric or duodenal ulcer, I advised operation. In fact, in some cases I have been more insistent upon surgery than some of the men who claim that ulcer is always a surgical condition.

I will relate a case of recurring ulcer to illustrate two things. During the attacks the patient was not able to retain any food for a week or ten days. He suffered great pain, was quite anemic, and was in a very low state of vitality from the attack in which I saw him. He was treated medically along the lines suggested and he gained about twenty pounds. He was in good condition and said he thought he was well; but I advised him to be operated upon in the interval. He wanted to go to the Mayos, so I sent him there with a positive diagnosis of recurring ulcer, with the request for an operation. He was examined at the Mayo Clinic, and they found no evidences of gastric ulcer. I was amazed when the patient came home and told me what they said, after I had insisted upon his undergoing an operation in the in-

terval. I did not see the patient any more, but in six months he had a recurrence, and continued to have recurrences about every five or six months. He was operated on three years later during one of the exacerbations and an indurated ulcer with almost complete pyloric stenosis was found. He died from the operation. This case brings out the fact that it is best not to operate upon a patient when he has the active symptoms of ulcer of the stomach and that it is important to build him up as much as you can, with preferably the Lenhartz ulcer diet, to get him in as good condition as possible and operate during the interval.

Another case to illustrate another phase of the question was a patient I saw from Mississippi a year ago who had definite symptoms of gastric ulcer. I advised rest and the ulcer diet and treatment. He said he could not lie up in an infirmary for three weeks. He came back to me in May of this year, but in the meantime without ever having had thorough or systematic medical treatment, he had gone to the Mayos and had been operated upon for gastric ulcer. He had all the symptoms of ulcer six months afterward. He had a recurrence of the ulcer. There could have been no question about it from the symptoms. Do not misunderstand me as mentioning these cases for the purpose of criticising the Mayos, because I am quite sure that they are equally as good surgeons as many of the men we have here today, and there are men here today who are as skilled surgeons as the Mayos. Furthermore, I am quite sure that the internists with the Mayos are equally as good diagnosticians as many of the men we have here, and many of our men are equally as good diagnosticians as they are. I merely mention these cases to illustrate the point that operation does not always cure these patients, that even with the most skillful surgeons we may expect a certain percentage of recurrences after operation and that recurring ulcers should be treated medically during the attacks preparatory for operation in the interval.

Regarding the question of frequent feedings and of having food in the stomach at all times, that is the basis of the Lenhartz treatment. It is also the basis of the Sippy treatment. Sippy, however, insists that it is necessary to give sodium bicarbonate and other alkalis to neutralize the hydrochloric acid present which would continue to irritate the ulcer and prevent its healing. Lenhartz begins with six drams of food every hour and increases it up to three ounces an hour within six days, so that in the first few days there are small quantities of food given. The stomach gets a certain amount of rest, and with alkalis the hydrochloric acid is neutralized.

Do not misunderstand me as being able to make a positive diagnosis of ulcer in every case: I do not claim to be able to do so. If the existence of an ulcer is suspected and if there are recurrent symptoms, or if the patient is not cured or relieved by thorough and systematic dietetic and medicinal treatment for ulcer, and there is some question as to the diagnosis, after eliminating neurasthenia, etc., I advise an exploratory operation. In some cases healed ulcers have been found on

the operating table. In other instances there have been gall-stones; and in some eight or ten cases I have seen, there have been both gall-stones and ulcer of the stomach. There are many cases of pylorospasm due to a reflex pain from the appendix; and the operation for appendicitis will relieve the stomach symptoms in many cases. An exploratory operation is advisable in many of them.

The ulcer patient should be kept under observation and his feces examined frequently for occult blood. He should not be pronounced cured until occult blood has disappeared from the stools for six months or a year.

A CASE OF SYRINGOMYELIA, MORVAN TYPE, IN A NEGRO

BY WILLIAM H. DEADERICK, M.D.,
Hot Springs, Ark.

ETIOLOGY

Syringomyelia is not a common disease anywhere, and seems to be rarer in America than in parts of Europe. Of a dozen or more authorities consulted, none mentions race as a factor, though Dercum gives an illustration of a case in a Negro. Males are more frequently affected than females. The disease begins oftenest during the second and third decades of life. Hard labor seems to be a predisposing cause, also exposure, trauma, the acute infectious diseases and syphilis. Several cases have been reported in the same family.

PATHOLOGY

The pathology is oftenest confined to the cervical region of the cord. The lesion is usually not symmetrically located. The pathologic condition consists of a gliomatosis and subsequent degeneration with the formation of a cavity which often communicates with the central canal. The interference with the cells of Clark's columns probably accounts for the joint lesions; the disturbances of the anterior horns of the gray matter is responsible for the atrophy; and interference with Gower's tracts probably accounts for the dissociated sensation.

SYMPTOMS

The cardinal symptoms of the disease are:

1. Dissociated anesthesia with loss of

pain and temperature sensations and preservation of tactile sense.

2. Trophic disturbances of skin and muscles, bones and joints.

3. Progressive muscular atrophy with paralysis.

The dissociated anesthesia was formerly thought to be pathognomonic of syringomyelia, but it is now known that this is found rarely in tabes, neuritis and hysteria. The combination of the three symptoms, however, are characteristic.

Leprosy must be differentiated, but the neurologic findings are usually sufficient.

A CASE

The following case was observed at the clinic of the Government Free Bath House. The patient disappeared before photographs, X-ray pictures and the electrical reaction could be obtained:

1. E., Greenville, Miss., colored, male, age 30, farmer.

F. H.—His mother died of tuberculosis.

P. H.—He had chills and fever eight years ago, gonorrhea last year, and a sore on the penis six years ago. He was cut on the back of the right shoulder joint seventeen years ago. In 1903 he had a cellulitis of the entire anterior aspect of the right forearm, which was absolutely painless, with opening about the wrist-joint. In 1909, he had a severe burn over the right wrist-joint which was painless. He had a severe electric shock, in 1910, in the right arm. In 1910, he had a painless whitlow of the right forefinger, which was cut open without pain.

Twelve years ago he had pain in the right shoulder. Then the middle finger of the right hand cracked open over the proximal phalangeal joint and exuded oily fluid. This lesion was not accompanied by any pain. Then the same joint of the ring finger had a similar lesion. Nine or ten years ago the hand began to draw.

P. I.—He now complains of drawing of the right hand and a numbness in the right hand and arm. About a month ago he felt tremors in the knee. The flow of urine is slow at first and the stream is poor. The bowels are normal. The sexual power has been poor for a year. There is no pain in the neck or back.

P. E.—The pulse is normal. The radials and brachials are palpable. The blood pressure is 115, 105, 80, 65, 60. The apex beat is in the fourth interspace inside the nipple line. The heart sounds and lungs are negative. The area of liver dullness is slightly increased, otherwise the abdomen is normal. The epitrochlears are enlarged; the knee jerks and Achilles are increased. There is no clonus and no Babinski. The wrist and arm jerks are increased, especially on the right side. The pectoralis major, suprascapular and subscapular reflexes are increased. The abdominal