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DISCUSSION

DR. JOHN H. FOSTER (Nashville): Some years ago, in the early 1960's, John Sawyers and I had the privilege of reviewing esophageal perforations at Vanderbilt with Dr. Rollin Daniel, and presented them before this Association. The findings were very much the same then as presented today; most of perforations were due to instrumentation. But as Dr. Hardy indicated, with the fiberoptic scopes used today, we are doing more endoscopic examinations, I think, than ever before; and yet we are rarely seeing esophageal perforation.

It was always of interest to me how the endoscopist, using the rigid metal scopes, did not recognize the fact that he had injured the esophagus. The most interesting case in our series was one in which the scope exited from the esophagus in the cervical region, went down the mediastinum and into the abdomen through the esophageal hiatus.

A couple of years ago, shortly after we published our paper, one was published in the *JAMA* advocating conservative therapy—nonoperative—for instrumental perforation of the esophagus. I have not heard any more of that report recently, but it certainly goes against everything I believe, and I am sure Dr. Hardy is in agreement.

One final thing I would say is that, in some of the horrendous perforations, especially of the spontaneous perforations, drainage is the absolute essential mode of management. If you can close the perforation, fine; but drainage is the real key factor. With total parenteral alimentation today, I believe it will be possible to manage these patients much more successfully.

DR. FREDERICK H. TAYLOR (Charlotte): I would certainly agree that the flexible esophagoscope is a much safer instrument, as far as perforation is concerned. At times we must use the rigid scope, and the preoperative insertion of a nasogastric tube seems to protect the posterior wall of the cervical esophagus from injury.

When instrumental perforation of the esophagus does occur, an immediate diagnosis is sometimes possible, and this enables not only repair and drainage of the injury, but also simultaneous correction of the underlying disease.

In two patients with hiatal hernia in whom the diagnosis of instrumental perforation was made immediately, the perforations were repaired, and the hernias corrected without complication. In two other patients with chronic esophageal strictures, in whom perforation had occurred as a result of dilatation, both were seen by us within 2 hours, and underwent resections of the lower esophagus, esophagogastric anastomosis, and pyloroplasty.

[Slide] This was a chronic stricture from an old lye burn with perforation, which was diagnosed within 2 hours after the injury.

[Slide] This is the specimen of the stricture, the location of the perforation.

One other point I would like to make: Having successfully defended a malpractice suit following instrumental perforation of the esophagus, I am well aware of the legal complications of this problem. The matter of informed consent is becoming increasingly important in malpractice suits.

[Slide] I hasten to add that this series is not a personal one but it is gathered from the literature. I am sure no one tells a patient of all these possibilities, but I would like to ask Dr. Hardy one question: What do you tell a patient when obtaining permission for esophagoscopy?

DR. JOHN B. BLALOCK (New Orleans): I would like to make two comments. The first is to cite an instance of a broncho-esophageal fistula due to a broncholith. The patient had coughed up a broncholith. The opening of the fistula was visualized by bronchoscopy and by esophagoscopy. This was demonstrated by a Dionosil swallow, with the outlining of the left lobe of the bronchus [slide].

[Slide] This is the operation from the right side with one probe in the left main stem bronchus, the other in the esophagus, and they were repaired as Dr. Hardy did in his patient.

My next comment is that in five instances at Ochsner Clinic we have successfully performed a definitive procedure at the time of operation for an instrumental perforation of the esophagus. Four of these were resections of either a carcinoma or a stricture, and the fifth was in a case of achalasia. In the latter patient the esophagus had been ruptured by the Mosher dilator. This is viewed from the left side [slide]. Dr. William McKinnon of our department repaired the esophagus, and proceeded to perform the Heller procedure on the opposite side of the esophagus.

[Slide] The view on your right shows the satisfactory post-operative result.

We feel that when a subsequent operation is inevitable, it may well be possible to perform this operation at the time of operation for perforation.

DR. ROBERT P. MCBURNEY (Memphis): I would like to mention cervicoesophagotomy, a procedure which I think is quite useful in these instances: a large perforation with much sepsis or in the case which is late, and comes to you with draining empyema and fistulas, in which it is difficult or unwise to dive right in and start working on the perforation. This was brought to my attention about 15 years ago, when I had occasion to see a patient on charity service at Baptist Hospital in Memphis. When I assumed charge of the service, this patient had been operated on twice for attempted closure of a traumatic perforation of the esophagus with tracheoesophageal fistula. Both procedures had failed, had broken down, and this young man, who was just 19, had been reduced to the nutritional status of a person who appeared to have been in one of Hitler's concentration camps. It looked as though death was about to occur.

First, we performed a cervicoesophagotomy, completely bypassing the esophageal secretions. I think this is helpful in many cases, because often by just putting a nasogastric tube down into the esophagus it does not really completely eliminate the supply of drainage and other material out through the fistula. This procedure plus gastrostomy turned this boy around, and then at a later date we were able to do an esophagocologastrostomy, constructing a new esophagus for him. I felt that this would probably be better than making a third attempt to operate in the area of the tracheoesophageal fistula.

He made an excellent recovery, and I commend this to you as a procedure which may be useful in a difficult instance, or in the patient in whom the perforation is massive. This procedure has been described also in the literature by others, and I think it may be compared in some respects to the usefulness of a colostomy when one is dealing with a perforation of the colon.

DR. GEORGE L. JORDAN, JR. (Houston): I would like to limit my comments to one special problem, namely, perforations of the lower end of the esophagus.

We have been concerned from time to time about traumatic perforations right at the esophago-gastric junction. This produces not only an injury of the esophagus, but also there is destruction of competence at the esophago-gastric junction, so that gastric reflux does occur.

We have recently repaired two of these injuries by a modification of the Thal procedure, in which the cardia of the stomach is used as a patch, which not only gives us secure closure, but guarantees adequate patency in this area.

In addition, if one is concerned about the possibility of reflux, a wrap-around of the cardia of the stomach will give the same effect as the Nissen fundoplication to prevent reflux, and thus will add further security to the repair.

We have found it a highly satisfactory procedure.

DR. CHARLES R. HATCHER, JR. (Atlanta): At Emory in the past 20 years quite a number of patients have been seen with spontaneous perforations of the esophagus. When it became apparent that our primary closure procedures were not entirely satisfactory, we developed the technic that I wish to mention as a procedure to consider for delayed cases of spontaneous perforation and for certain patients such as alcoholics and others in poor nutritional status, in whom you anticipate poor healing.

[Slide] Over this period there were 47 patients seen with Boerhaave syndrome, and we had the occasion to see a number after 24 hours. Of course, ideally, if you see the patients early, the definitive procedure of primary closure is indicated, but in the delayed patients who may constitute a major segment of the group, it is not wise to attempt a primary closure.

[Slide] In that circumstance we have accepted a controlled fistula, and inserted a T-tube through the perforation, closing the perforation partially about the side-arm of the T-tube. We used a soft T-tube which can be brought away from the aorta and attached loosely to the diaphragm to prevent any problems with aortic erosion, and to lead this out posteriorly and laterally.

We used a gastrostomy tube and a feed jejunostomy; we may or may not use a Levin tube through the T-tube into the stomach, but certainly a Levin tube should be used above the T-tube, if it is not placed this far. With all of these on suction, it is possible to limit the leakage through the fistula, and these patients have done surprisingly well.

This technic was used on ten occasions. Six of the patients are long-term survivors, and this was in a group with which we could not have satisfactory results prior to that time.

[Slide] Of course, we do not manage our traumatic wounds of the esophagus in such a manner, but use more standard treatment. At Grady Hospital, Dr. Symbas and our other associates see quite a large number of traumatic esophageal injuries. We recently reviewed these, and had 12 in the cervical area, seven in the thoracic area, and three in the area discussed by Dr. Jordan. All of these were from gunshot wounds, with one exception.

[Slide] The standard treatment there has been constant nasogastric suction and suspension of all oral alimentation, fluid therapy as necessary, broad spectrum antibiotics, and early operation.

[Slide] By use of that program it has been possible to salvage a significant number of these patients. Two of the 12 cervical injuries were fatal. We lost more patients with thoracic injuries than we salvaged, but these were massive injuries associated with trauma to other organs, including the aorta. We were successful in salvaging the three patients with injuries at the esophagogastric junction.

In summary, I think that injuries of the esophagus are difficult problems, and as has been mentioned, no one particular approach is applicable to all cases. I would commend to you the possible use of a T-tube for controlling a fistula as a way out of a situation in which you have extensive infection and necrosis about a spontaneous esophageal perforation.

DR. WILLIAM TOMPKINS (Closing): Dr. Foster, we have reviewed your paper on esophageal perforations, and would agree that operative closure of the defect should be attempted, if at all possible.

We appreciated Dr. Taylor's remarks. As to his question as to what we tell a patient when obtaining permission for esophagostomy, we tell the patient that it carries a definite risk of injury. We enumerate these possibilities, but we attempt to convince the patient that we will exercise all caution and care possible.

Dr. Blalock, we want to thank you for showing your results of broncholith fistula. We have not had occasion to resect a fistula for this at the University or Veterans Hospital in Jackson.

Dr. McBurney, we certainly believe that cervical esophagostomy can contribute significantly to the management of an esophageal fistula.

Dr. Jordan, we have not used the Thal gastric patch, but we are gratified to learn of its success in this instance.

Dr. Hatcher's series of Boerhaave's spontaneous perforation is certainly impressive. We would like to thank him for his ingenious method of draining the esophageal fistula with a T-tube. We would agree that there are times when the perforated esophagus cannot be sutured successfully, and Dr. Hatcher's method could be useful.