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Early Diagnosis of GI Malignancy Offers the Best Chance of Survival

Treatment of Upper GI Cancer is a Multidisciplinary Approach
Dear Colleagues,

Disease of the upper gastrointestinal tract is gaining increased attention from physicians and patients alike, as more and more people report symptoms of gastroesophageal reflux disease (GERD). In fact, 50 percent of people will suffer reflux to some degree at some point in their lifetime, and 10 to 15 percent of the population will have significant reflux disease.

Fortunately, this disease has numerous effective treatment options, so that most patients do not suffer serious long-term complications. Yet left untreated, GERD can result in ulcerations, narrowing and strictures of the esophagus. Patients can develop Barrett’s esophagus, in which cells of the esophagus change to resemble cells of the stomach and intestine. This condition increases risk for the development of esophageal adenocarcinoma, which is growing in numbers.

When a patient develops swallowing disorders or other symptoms of the upper GI tract, we at the Digestive Disease Institute realize how critical it is to properly diagnose and rule out serious conditions, including cancer and pre-cancerous states.

This issue of Digestive Trac explores the common conditions of the upper GI tract, which progress in severity from GERD and eosinophilic esophagitis, to Barrett’s esophagus, to esophageal and gastric cancer.

Dedicated to providing the highest quality care, our multidisciplinary team offers a full range of diagnostic tools, including esophagogastroduodenoscopy (EGD), barium X-ray, Bravo wireless pH monitoring, 24-hour pH impedance testing, and endoscopic ultrasound. We also offer the latest treatment options, including minimally-invasive surgical techniques such as radiofrequency ablation (RFA), Nissen fundoplication, and gastrointestinal endoscopic mucosal resection (EMR). For diagnoses of upper GI malignancies, our team is ready to strive toward best possible outcomes through a multidisciplinary approach of surgery, medical oncology and radiation therapy. We invite you to read about these specific aspects of our program in this issue.

It is our continuing goal, as well as our privilege, to work closely with primary care physicians for our patients’ best interest and continuity of care. Please feel free to contact us at (605) 322-7797 with questions or for more information.

Sincerely,

Scott L. Baker, MD, FACS
Colorectal Surgery
Surgical Institute of South Dakota

Steven Condron, MD, MHES, FACP
Gastroenterology and Hepatology
Avera Medical Group Gastroenterology

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Multidisciplinary Team Includes the Following Areas of Specialty:

**Colorectal Surgery:**
Scott L. Baker, MD, FACS

**Gastroenterology and Hepatology:**
Steven Condron, MD, MHES, FACP
Cristina Hill Jensen, MD
Christopher Hurley, MD
Larry W. Schafer, MD, FACP
Dany Shamoun, MD

**General Surgery:**
Scott L. Baker, MD, FACS
Michael Bauer, MD
Wade E. Dosch, MD, FACS
David Flanagan, MD
Thomas E. Fullerton, MD
Michael Person, MD
David A. Strand, MD, FACS
Bradley C. Thaemert, MD, FACS

**Genetics:**
Nicole Mattila, CGC, MS

**Hepatology:**
Hesham Elgouhari, MD, FACP
Mumtaz Niazi, MD

**Hepatobiliary & Transplant:**
Christopher Auvenshine, DO
Tariq N. Khan, MD

**Medical Oncology:**
David Elson, MD
Mark R. Huber, MD
Michael McHale, MD
Heidi McKeen, MD
Addison R. Tolentino, MD

**Pathology:**
Steven P. Olson, MD
Bruce R. Prouse, MD
Raed A. Sulaiman, MD

**Radiation Oncology:**
Barbara Schlager, MD
Kathleen L. Schneekloth, MD
James Simon, MD

**Radiology:**
Sabina Choudhry, MD
Brad A. Paulson, MD

**Research (Cancer clinical trials)**

**Urogynecology:**
Matthew A. Barker, MD, FACOG

If you have any questions or would like to make a referral to the Avera Digestive Disease Institute, call 605-322-7797.
Dysphagia can signal anything from the simple to complex, but in all cases, difficulty swallowing should be fully investigated to rule out serious disorders, including cancer and precancerous conditions.

“Difficulty swallowing may be one symptom of GERD, or infrequently, the only symptom. Other classic symptoms include frequent heartburn and indigestion. Less commonly, GERD can be signaled by a chronic cough, frequent throat-clearing, feeling of a lump in the throat, an excessive amount of mucous in the throat when eating and non-cardiac chest pain, which may make the patient feel like he or she is having a heart attack.”

GERD is treated first with the most conservative approaches including diet and lifestyle change. The next course of action is medication – H2 blockers and proton pump inhibitors (PPIs) such as esomeprazole, lansoprazole, and omeprazole. “These medications can be safely used long term,” Dr. Hurley said. Untreated GERD can lead to changes in the cells of the esophagus, resulting in Barrett’s esophagus, which places patients at higher risk for esophageal cancer.

“Anytime patients have dysphagia or other warning signs such as unexplained weight loss, blood in the stool or anemia, they should undergo an endoscopic study to rule out serious conditions such as Barrett’s esophagus or esophageal cancer,” Dr. Hurley said.

Esophageal manometry. This test measures peristalsis in the esophagus when swallowing. In this outpatient procedure that can be performed without sedation, a patient wears a small wireless capsule which also transmits to a computerized recorder worn by the patient. Esophageal function can also be evaluated using esophageal manometry. This test measures peristalsis in the esophagus when swallowing. In this outpatient procedure.

“A new development in upper GI cancers is testing patients for the HER2 marker, commonly associated with breast cancer. “Thirty to 40 percent of patients do test positive for HER2, meaning that we can take specific aim at the tumor by adding Herceptin® to chemotherapy. This is a nice new direction in improving overall survival,” Dr. McKean said.

“With a gastric cancer, surgery generally takes place up front, followed by any recommended chemotherapy and radiation,” Dr. McKean said.

If a gastric tumor is unresectable, radiotherapy may be used with or without chemotherapy to potentially downsize the tumor and increase the chance of the cancer becoming resectable. “This therapy may also palliate symptoms such as pain or bleeding,” Dr. Schneekloth added.

External beam radiation is the modality most often used for radiation treatment of upper GI tumors. In addition, Intensity Modulated Radiation Therapy (IMRT) may be used when cancer is located at a difficult position, or as a boost. Intraluminal high-dose rate brachytherapy is another option as a boost to primary treatment.

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Treatment of Upper GI Cancer is a Multidisciplinary Approach

After diagnosis of an upper digestive tract malignancy, the first question to be answered with diagnostic studies is whether or not the tumor is surgically resectable.

“If the cancer is stage 1 and very superficial, it can be resected endoscopically, using a combination of gastrointestinal endoscopic mucosal resection (EMR) and radiofrequency ablation (RFA). Beyond early-stage malignancy, cancer of the lower esophagus and gastroesophageal junction are resected surgically. “We remove the distal one-half to two-thirds of the esophagus and the top part of the stomach, and perform a stomach pull-up procedure, attaching it to the top of the esophagus,” Dr. Thaemert added.

To perform this procedure, surgeons used to open both the chest and the abdomen. Today, it is performed using minimally invasive techniques. Patients usually stay in the hospital for five to six days, and have a feeding tube for a short time. After that, they can return to a normal life, although their eating habits are permanently changed to eating small amounts, more often.

Cancer of the GE junction is treated similarly, with removal of the top fourth of the stomach. “If the cancer is located in the top of the stomach, we may not have to remove as much of the esophagus,” Dr. Thaemert added.

If a gastric cancer is localized, after resection, the surgeon may be able to put together a smaller version of the stomach. If most of the stomach is removed, it is replaced with a small piece of the bowel in a Roux-en-Y technique, similar to gastric bypass.

“Most upper GI surgeries are performed minimally invasively, for a smaller incision, less potential for pain and faster recovery,” Dr. Thaemert stated.

While surgery is most often the first goal of the treatment strategy, other treatment modes may come first. “A multidisciplinary team is an absolute requirement for taking on these kinds of cancers,” Dr. Thaemert said.

“Often with esophageal cancer, we find it in its more advanced stages, and so we offer a course of chemotherapy and radiation preoperatively to shrink the tumor and make surgery more successful,” said Dr. Heidi McKeen, medical oncologist with Avera Medical Group Oncology & Hematology.

“There is definite proof that at certain stages of the disease, preoperative radiation and chemotherapy can reduce the size of the tumor, downstage the cancer, and make resection easier, improving survival rate and rate of recurrence,” added Dr. Barbara Schlager, radiation oncologist with Avera Medical Group Radiation Oncology.

“If the tumor is not resectable, radiation and chemotherapy can be used as a definitive curative treatment plan,” said Dr. Kathleen Schneekloth, radiation oncologist with Avera Medical Group Radiation Oncology. Chemotherapy and radiation can also be used without surgery to treat esophageal cancers that are in difficult areas, such as the neck area, or around critical blood vessels. “Chemotherapy and radiation can also be palliative, controlling the catheter equipped with sensors is passed through the nose down the esophagus and into the stomach.

If GERD does not respond to medications, surgery may be indicated. Surgery may also be indicated per patient preference, or if the patient does not want to take medications long term.

“Medications are not a cure for reflux – they simply reduce the acid. The actual problem is mechanical. The valve between the esophagus and stomach no longer works, and many patients also have a hiatal hernia, in which the stomach is pushed up through the diaphragm into the lower esophagus,” added Dr. Brad Thaemert, surgeon with Surgical Institute of South Dakota.

The most common surgical approach – Nissen fundoplication – both fixes hiatal hernia and creates a new valve between the stomach and esophagus.

During fundoplication surgery, the upper curve of the stomach (the fundus) is wrapped around the esophagus and sewn into place so that the lower portion of the esophagus passes through a small tunnel of stomach muscle. This surgery strengthens the lower esophageal sphincter, which stops acid from backing up into the esophagus as easily. “This surgery is done minimally-invasively, through laparoscopy, and can also be done robotically. It can also be a ‘scarsless’ technique with all instruments inserted through a single incision in the navel,” Dr. Thaemert said.

When patients present with dysphagia, physicians should also keep in mind the possibility of eosinophilic esophagitis, which is inflammation or narrowing caused by an allergic response to food triggers. “It’s a disease that’s becoming more prominent,” said Dr. Hill Jensen. “We used to think of it as affecting only children, but it’s now affecting young as well as older adults. It is more common in young men.”

The classic symptom is that food gets stuck in the esophagus of a patient who has never before had difficulty swallowing. “They may present to the emergency room with a food item that is stuck, or even a food impaction,” Dr. Hill Jensen said. EE is diagnosed by biopsies of different regions of the esophagus, looking for higher than normal levels of eosinophils, a type of white blood cell. EE is treated in conjunction with allergists/immunologists, and involves avoidance of food triggers, as well as steroid type medications which are either oral, or misted into the throat via an inhaler.

“When dysphagia or other serious symptoms result from GERD or other disorders, the multidisciplinary team of the Digestive Disease Institute can employ specialized diagnostic tests and treatments to address these conditions for the best possible outcomes,” Dr. Hurley stated.

“Through a diagnostic workup that may involve endoscopy, endoscopic ultrasound, biopsy, and CT and PET scans, we know exactly what we’re dealing with,” said Dr. Brad Thaemert, surgeon with Surgical Institute of South Dakota.

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Acid reflux is a very common, treatable medical problem. Yet untreated, the long-term effects of acid flowing into the esophagus can cause development of a precancerous condition known as Barrett’s esophagus. Barrett’s is estimated to affect between 2 and 7 million adults over 40 years of age. While Barrett’s esophagus is not a painful or life-threatening condition in itself, patients with Barrett’s esophagus have a risk of developing cancer of the esophagus that is 30 to 125 times higher than patients without this condition.

“Increased cancer risk is why it’s important that Barrett’s be properly diagnosed and treated,” stated Dr. Dany Shamoun, gastroenterologist with Avera Medical Group Gastroenterology. “Adenocarcinoma of the esophagus is a very serious disease, often with a poor prognosis. Preventing cancer before it develops is our ultimate goal in the surveillance of Barrett’s esophagus.”

In Barrett’s esophagus, the cells that line the inside of the lower esophagus are replaced by columnar cells resembling those that line the inside of the stomach or intestine. In Barrett’s esophagus, the positively impacting gastric cancer rates. Other contributors to gastric cancer include a diet high in salted or smoked, or poorly preserved foods, and low in fruits and vegetables.

“Difficulty swallowing, bleeding or unexplained weight loss are all symptoms which could indicate upper GI malignancies,” stated Dr. Shamoun.

The first diagnostic tool is typically esophagogastroduodenoscopy (EGD), or upper endoscopy. “If we see a tumor, we can take a biopsy at the same time to determine if it is cancer,” Dr. Shamoun added.

The stage of cancer is then further determined by a CT (computerized tomography) scan of the chest, abdomen and pelvis, which is supplemented with a PET (positron emission tomography) scan.

Endoscopic ultrasound is a combination of endoscopy and ultrasound to see images of lymph nodes, organs, or tissues outside of the digestive tract. The video camera and ultrasound probe are inserted via the endoscope, and the ultrasound probe can be used to see ultrasound images through the esophageal or stomach wall. EUS can be used to guide a fine needle into the tumor to perform a biopsy during the same procedure. A pathologist can study the slide during the procedure, so that additional samples can be collected in order to make a definitive diagnosis.

“Through all these stages of diagnosis, we can accurately stage the tumor, lymph node involvement and metastasis as closely as possible, short of invasively removing the tumor and studying it under the microscope,” Dr. Shamoun added.
Early Diagnosis of GI Malignancy Offers the Best Chance of Survival

Malignancies of the esophagus, gastroesophageal junction (GEJ) and stomach are rare in the United States, yet deadly. Early detection gives patients the best chance of survival.

“Frequency of esophageal cancer is growing,” stated Dr. Dany Shamoun, gastroenterologist with Avera Medical Group Gastroenterology. In the last four decades, frequency has increased by six fold, from four cases per million people to 23. At the same time, the rate of death from esophageal cancer has grown by seven fold, from two deaths per million people to 15.

In times past, most cases of esophageal cancer were squamous cell cancers linked to smoking and heavy drinking. Today, squamous cell cancers make up less than half of esophageal cancer; the majority are now adenocarcinomas, which occur due to cell changes in the esophagus, stemming from a condition known as Barrett’s esophagus.

Even with aggressive treatment, the five-year survival rate from esophageal adenocarcinoma is only about 17 percent. Each year, there are approximately 17,000 cases of esophageal cancer diagnosed, with 14,700 deaths from the disease.

Cancers that start at the GE junction tend to behave like esophageal cancers, and are treated in a similar manner. New gastric cancer cases in the United States number about 21,000 annually, with 10,340 deaths annually from the disease.

The helicobacter pylori (H. pylori) bacterial infection, which also causes stomach ulcers, is a major cause of gastric cancer. The advent of antibiotics to treat ulcers associated with this infection may be

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**RFA Technology Available to Treat Barrett’s Esophagus**

A novel treatment option known as radio frequency ablation (RFA) can cure Barrett’s esophagus in the vast majority of patients, and virtually eliminate the higher risk of esophageal cancer.

"In the past, we did not have good treatments for Barrett’s, except for treating the acid reflux, and ‘watchful waiting’ to see if cancer developed. Now, we have a safe treatment option to effectively get rid of Barrett’s esophagus, with few side effects," said Dr. Dany Shamoun, gastroenterologist with Avera Medical Group Gastroenterology.

"During an outpatient endoscopic procedure, radiofrequency ablation (RFA) therapy is used to thermally injure the superficial layer of the esophagus – about 1 mm of tissue," said Dr. Steven Condron, gastroenterologist with Avera Medical Group Gastroenterology. In the healing process, the affected layer sloughs away, and new, healthy esophageal lining tissue grows in its place. This procedure has a 90 to 98 percent five-year success rate of curing Barrett’s, depending upon how advanced the disease is.

The Avera Digestive Disease Institute uses the HALO System by Barrx Medical. "Avera is the only health provider in the state to house the HALO system and offer this specific procedure," Dr. Condron added. In the procedure, radiofrequency energy is delivered via a catheter. While the patient is sedated, a device is inserted through the mouth into the esophagus and used to deliver a controlled level of energy and power to remove a thin layer of diseased tissue. Less than one second of energy removes tissue to a depth of about 1 mm. Larger areas of Barrett’s tissue are treated with the balloon-mounted catheter. Smaller areas are treated with the endoscope-mounted catheter. Both are introduced during an upper endoscopy procedure.

Radiofrequency ablation for Barrett’s esophagus has been used in more than 60,000 cases. This procedure can be used through all three levels of dysplasia – metaplasia (non-dysplastic), low-grade dysplasia and high-grade dysplasia. "If a patient has metaplasia, we see a 98 percent success rate. Even with high dysplasia, the patient has a 90 percent success rate of developing normal esophageal tissue again," said Dr. Brad Thaemert, surgeon with Surgical Institute of South Dakota.

Dr. Shamoun stated, "RFA is typically indicated after dysplasia has begun to develop. But a person with metaplasia may also benefit, for example, if there are other risk factors which indicate a need for more aggressive treatment."

RFA has been offered at Avera for the past year. "A novel therapy, RFA has been available and studied over the past five years. We adopted it after several years of data were available, once its safety and effectiveness were proven," Dr. Condron added.

**HALO Ablation Technology has been proven to be safe and effective for treating all types of Barrett’s tissue.**

**RESULTS**

- Extensive clinical evaluations have been completed in the US and Europe
- Radiofrequency ablation (RFA) has been found to be cost effective for treatment of all types of Barrett’s tissue.

Sources:
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Malignancies of the esophagus, gastroesophageal junction (GEJ) and stomach are rare in the United States, yet deadly. Early detection gives patients the best chance of survival.

“Frequency of esophageal cancer is growing,” stated Dr. Dany Shamoun, gastroenterologist with Avera Medical Group Gastroenterology. In the last four decades, frequency has increased by six fold, from four cases per million people to 23. At the same time, the rate of death from esophageal cancer has grown by seven fold, from two deaths per million people to 15.

In times past, most cases of esophageal cancer were squamous cell cancers linked to smoking and heavy drinking. Today, squamous cell cancers make up less than half of esophageal cancer; the majority are now adenocarcinomas, which occur due to cell changes in the esophagus, stemming from a condition known as Barrett’s esophagus.

Even with aggressive treatment, the five-year survival rate from esophageal adenocarcinoma is only about 17 percent. Each year, there are approximately 17,000 cases of esophageal cancer diagnosed, with 14,700 deaths from the disease.

Cancers that start at the GE junction tend to behave like esophageal cancers, and are treated in a similar manner. New gastric cancer cases in the United States number about 21,000 annually, with 10,340 deaths annually from the disease.

The helicobacter pylori (H. pylori) bacterial infection, which also causes stomach ulcers, is a major cause of gastric cancer. The advent of antibiotics to treat ulcers associated with this infection may be

The first stage of change is metaplasia (non-dysplastic). Low-grade dysplasia is the next progression, in which less than 50 percent of the abnormal cells have begun to change in size, shape, or organization and may show an increase in their growth rate.

In high-grade dysplasia, more than 50 percent of cells demonstrate a higher increase in abnormal growth rate and pattern. Risk of developing cancer at this stage increases dramatically.

Only a small percentage of people with acid reflux will go on to develop Barrett’s esophagus. “It is estimated that up to 13 percent of the people who have chronic acid reflux also have Barrett’s esophagus. Yet Barrett’s is asymptomatic, so any patient who has had acid reflux disease for five years or more should undergo endoscopy to rule out this condition, due to the risk of cancer,” Dr. Shamoun advised.

Acid reflux is a very common, treatable medical problem. Yet untreated, the long-term effects of acid flowing into the esophagus can cause development of a precancerous condition known as Barrett’s esophagus. Barrett’s is estimated to affect between 2 and 7 million adults over 40 years of age. While Barrett’s is not a painful or life-threatening condition in itself, patients with Barrett’s esophagus have a risk of developing cancer of the esophagus that is 30 to 125 times higher than patients without this condition.

“This increased cancer risk is why it’s important that Barrett’s be properly diagnosed and treated,” stated Dr. Dany Shamoun, gastroenterologist with Avera Medical Group Gastroenterology. “Adenocarcinoma of the esophagus is a very serious disease, often with a poor prognosis. Preventing cancer before it develops is our ultimate goal in the surveillance of Barrett’s esophagus.”

In Barrett’s esophagus, the cells that line the inside of the lower esophagus are replaced by columnar cells resembling those that line the inside of the stomach or intestine. "Difficulty swallowing, bleeding or unexplained weight loss are all symptoms which could indicate upper GI malignancies," stated Dr. Shamoun.

The stage of cancer is then further determined by a CT (computed tomography) scan of the chest, abdomen and pelvis, which is supplemented with a PET (positron emission tomography) scan.

Endoscopic ultrasound is a combination of endoscopy and ultrasound to see images of lymph nodes, organs, or tissues outside of the digestive tract. The video camera and ultrasound probe are inserted via the endoscope, and the ultrasound probe can be used to see ultrasound images through the esophageal or stomach wall. EUS can be used to guide a fine needle into the tumor to perform a biopsy during the same procedure. A pathologist can study the slide during the procedure, so that additional samples can be collected in order to make a definitive diagnosis.

“The increased cancer risk is why it’s important that Barrett’s be properly diagnosed and treated,” stated Dr. Shamoun. "Difficulty swallowing, bleeding or unexplained weight loss are all symptoms which could indicate upper GI malignancies," stated Dr. Shamoun. The first diagnostic tool is typically esophagogastroduodenoscopy (EGD), or upper endoscopy. “If we see a tumor, we can take a biopsy at the same time to determine if it is cancer,” Dr. Shamoun added.

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“Through all these stages of diagnosis, we can accurately stage the tumor, lymph node involvement and metastasis as closely as possible, short of invasively removing the tumor and studying it under the microscope.” Dr. Shamoun added.
Treatment of Upper GI Cancer is a Multidisciplinary Approach

After diagnosis of an upper digestive tract malignancy, the first question to be answered with diagnostic studies is whether or not the tumor is surgically resectable.

“Through a diagnostic workup that may involve endoscopy, endoscopic ultrasound, biopsy, and CT and PET scans, we know exactly what we’re dealing with,” said Dr. Brad Thaemert, surgeon with Surgical Institute of South Dakota.

If the cancer is stage 1 and very superficial, it can be resected endoscopically, using a combination of gastrointestinal endoscopic mucosal resection (EMR) and radiofrequency ablation (RFA). Beyond early-stage malignancy, cancer of the lower esophagus and gastroesophageal junction are resected surgically. “We remove the distal one-half to two-thirds of the esophagus and the top part of the stomach, and perform a stomach pull-up procedure, attaching it to the top of the esophagus,” Dr. Thaemert added.

To perform this procedure, surgeons used to open both the chest and the abdomen. Today, it is performed minimally invasively, for a smaller incision, less potential for pain and faster recovery,” Dr. Thaemert stated.

If a gastric cancer is localized, after resection, the surgeon may be able to put together a smaller version of the stomach. If most of the stomach is removed, it is replaced with a small piece of the bowel in a Roux-en-Y technique, similar to gastric bypass.

“Most upper GI surgeries are performed minimally invasively, for a smaller incision, less potential for pain and faster recovery,” Dr. Thaemert said.

While surgery is most often the first goal of the treatment strategy, other treatment modes may come first. “A multidisciplinary team is an absolute requirement for taking on these kinds of cancers,” Dr. Thaemert said.

“Often with esophageal cancer, we find it in its more advanced stages, and so we offer a course of chemotherapy and radiation preoperatively to shrink the tumor and make surgery more successful,” said Dr. Heidi McKeen, medical oncologist with Avera Medical Group Oncology & Hematology.

“There is definite proof that at certain stages of the disease, preoperative radiation and chemotherapy can reduce the size of the tumor, downstage the cancer, and make resection easier, improving survival rate and rate of recurrence,” added Dr. Barbara Schlager, radiation oncologist with Avera Medical Group Radiation Oncology.

“If the tumor is not resectable, radiation and chemotherapy can be used as a definitive curative treatment plan,” said Dr. Kathleen Schneekloth, radiation oncologist with Avera Medical Group Radiation Oncology. Chemotherapy and radiation can also be used without surgery to treat esophageal cancers that are in difficult areas, such as the neck area, or around critical blood vessels. “Chemotherapy and radiation can also be palliative, controlling the catheter equipped with sensors is passed through the nose down the esophagus and into the stomach.

If GERD does not respond to medications, surgery may be indicated. Surgery may also be indicated per patient preference, or if the patient does not want to take medications long term.

“Medications are not a cure for reflux – they simply reduce the acid. The actual problem is mechanical. The valve between the esophagus and stomach no longer works, and many patients also have a hiatal hernia, in which the stomach is pushed up through the diaphragm into the lower esophagus,” added Dr. Brad Thaemert, surgeon with Surgical Institute of South Dakota.

The most common surgical approach – Nissen fundoplication – both fixes hiatal hernia and creates a new valve between the stomach and esophagus.

During fundoplication surgery, the upper curve of the stomach (the fundus) is wrapped around the esophagus and sewn into place so that the lower portion of the esophagus passes through a small tunnel of stomach muscle. This surgery strengthens the lower esophageal sphincter, which stops acid from backing up into the esophagus as easily. “This surgery is done minimally invasively, through laparoscopy, and can also be done robotically. It can also be a ‘scarless’ technique with all instruments inserted through a single incision in the navel,” Dr. Thaemert said.

When patients present with dysphagia, physicians should also keep in mind the possibility of eosinophilic esophagitis, which is inflammation or narrowing caused by an allergic response to food triggers. “It’s a disease that’s becoming more prominent,” said Dr. Hill Jensen. “We used to think of it as affecting only children, but it’s now affecting young as well as older adults. It is more common in young men.”

The classic symptom is that food gets stuck in the esophagus of a patient who has never before had difficulty swallowing. “They may present to the emergency room with a food item that is stuck, or even a food impaction,” Dr. Hill Jensen said. EE is diagnosed by biopsies of different regions of the esophagus, looking for higher than normal levels of eosinophils, a type of white blood cell. EE is treated in conjunction with allergists/immunologists, and involves avoidance of food triggers, as well as steroid type medications which are either oral, or mixed into the throat via an inhaler.

“When dysphagia or other serious symptoms result from GERD or other disorders, the multidisciplinary team of the Digestive Disease Institute can employ specialized diagnostic tests and treatments to address these conditions for the best possible outcomes,” Dr. Hurley stated.

“Dr. Cristina Hill Jensen performing an endoscopy

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To perform this procedure, surgeons used to open both the chest and the abdomen. Today, it is performed using minimally invasive techniques. Patients usually stay in the hospital for five to six days, and have a feeding tube for a short time. After that, they can return to a normal life, although their eating habits are permanently changed to eating small amounts, more often.

Cancer of the GE junction is treated similarly, with removal of the top fourth of the stomach. “If the cancer is located in the top of the stomach, we may not have to remove as much of the esophagus,” Dr. Thaemert added.
Dysphagia Should be Closely Studied to Rule Out Serious Conditions

Dysphagia can signal anything from the simple to complex, but in all cases, difficulty swallowing should be fully investigated to rule out serious disorders, including cancer and precancerous conditions.

“The term dysphagia can represent a variety of disorders, as simple as reflux disease, to motility disorders, to the effects of diseases such as sclerodema or Sjögren’s syndrome,” said Dr. Cristina Hill Jensen, gastroenterologist with Avera Medical Group Gastroenterology.

Gastroesophageal reflux disease (GERD) is the most common cause of dysphagia. “Fifty percent of people, at some point in their lifetime, experience symptoms of reflux, and 10 to 15 percent of the population have significant reflux disease,” stated Dr. Christopher Hurley, gastroenterologist with Avera Medical Group Gastroenterology.

Difficulty swallowing may be one symptom of GERD, or infrequently, the only symptom. Other classic symptoms include frequent heartburn and indigestion. Less commonly, GERD can be signaled by a chronic cough, frequent throat-clearing, feeling of a lump in the throat, an excessive amount of mucous in the throat when eating and non-cardiac chest pain, which may make the patient feel like he or she is having a heart attack.

GERD is treated first with the most conservative approaches including diet and lifestyle change. The next course of action is medication – H2 blockers and proton pump inhibitors (PPIs) such as esomeprazole, lansoprazole, and omeprazole. “These medications can be safely used long term,” Dr. Hurley said. Some patients are concerned that PPIs may place them at higher risk for osteoporosis due to impaired metabolism of calcium and vitamin D. Patients are advised to take PPIs as needed, and supplement with additional calcium and vitamin D.

“Other than troublesome symptoms, GERD can cause inflammation and ulcers in the esophagus, as well as strictures and narrowing due to scarring. It’s this type of damage which can cause difficulty swallowling,” added Dr. Hill Jensen. Untreated GERD can lead to changes in the cells of the esophagus, resulting in Barrett’s esophagus, which places patients at higher risk for esophageal cancer.

“Anytime patients have dysphagia or other warning signs such as unexplained weight loss, blood in the stool or anemia, they should undergo an endoscopic study to rule out serious conditions such as Barrett’s esophagus or esophageal cancer,” Dr. Hurley stated.

Esophagogastroduodenoscopy (EGD), endoscopy which examines the lining of the esophagus, stomach and first section of the small intestine, is the most commonly recommended diagnostic test. A barium X-ray can signal whether or not reflux is actually occurring. “Patients diagnosed with GERD should undergo one EGD to ensure that they have not developed Barrett’s esophagus, because there are no symptoms,” Dr. Hurley said. After that, further studies are not needed unless the patient develops worsening symptoms.

A 24-hour pH impedance test measures how much acid is coming into the esophagus, and if acid correlates with symptoms. Small probes are inserted through nasal passages, and results are transmitted to a computerized recorder that the patient wears over the shoulder. A 48-hour Bravo pH impedance test involves placing a small wireless capsule inside the esophagus during an endoscopic procedure, which also transmits to a computerized recorder worn by the patient. Esophageal function can also be evaluated using esophageal manometry. This test measures peristalsis in the esophagus when swallowing. In this outpatient procedure that can be performed without sedation, a course of the disease and giving patients better quality of life and longer survival,” Dr. Schlager added.

“With gastric cancer, surgery generally takes place up front, followed by any recommended chemotherapy and radiation,” Dr. McKean said.

If a gastric tumor is unsectable, radiotherapy may be used with or without chemotherapy to potentially downsize the tumor and increase the chance of the cancer becoming resectable. “This therapy may also palliate symptoms such as pain or bleeding,” Dr. Schneekloth added.

External beam radiation is the modality most often used for radiation treatment of upper GI tumors. In addition, Intensity Modulated Radiation Therapy (IMRT) may be used when cancer is located at a difficult position, or as a boost. Intraluminal high-dose rate brachytherapy is another option as a boost to primary treatment.

A new development in upper GI cancers is testing patients for the HER2 marker, commonly associated with breast cancer. “Thirty to 40 percent of patients do test positive for HER2, meaning that we can take specific aim at the tumor by adding Herceptin® to chemotherapy. This is a nice new direction in improving overall survival,” Dr. McKean said.

Nutrition Services Offered to Cancer Patients

Throughout treatment, the Avera Cancer Institute offers the services of an outpatient dietitian, Jessie Muth, whose position is funded by the Avera Race Against Breast Cancer, Avera McKennan Foundation. Anyone with a cancer diagnosis is not charged for consultations.

Muth meets with patients in order to estimate their caloric and protein needs, and determine how their nutritional needs will be met. “We try to meet those needs by mouth if possible, working on food texture or different types of food based on what the patient can tolerate,” Muth said. Patients may have a combination of eating by mouth and a feeding tube, or a feeding tube alone.

“It’s important for patients to understand that if they are able to stay nourished, they recover faster, tolerate treatment better, experience fewer breaks in treatment and experience better outcomes,” Muth added.

“The key benefit offered by the Digestive Disease Institute is that the entire team sits down together at the table to discuss cases and collaborate on the best possible treatment plan,” Dr. McKean said.
Multidisciplinary Team Includes the Following Areas of Specialty:

**Colorectal Surgery:**
Scott L. Baker, MD, FACS

**Gastroenterology and Hepatology:**
Steven Condron, MD, MHES, FACP
Cristina Hill Jensen, MD
Christopher Hurley, MD
Larry W. Schafer, MD, FACP
Dany Shamoun, MD

**General Surgery:**
Scott L. Baker, MD, FACS
Michael Bauer, MD
Wade E. Dosch, MD, FACS
David Flanagan, MD
Thomas E. Fullerton, MD
Michael Person, MD
David A. Strand, MD, FACS
Bradley C. Thaemert, MD, FACS

**Hepatobiliary & Transplant:**
Christopher Auvenshine, DO
Tariq N. Khan, MD

**Medical Oncology:**
David Elson, MD
Mark R. Huber, MD
Michael McHale, MD
Heidi Mckean, MD
Addison R. Tolentino, MD

**Pathology:**
Steven P. Olson, MD
Bruce R. Prouse, MD
Raed A. Sulaiman, MD

**Radiation Oncology:**
Barbara Schlager, MD
Kathleen L. Schneekloth, MD
James Simon, MD

**Radiology:**
Sabina Choudhry, MD
Brad A. Paulson, MD

**Research (Cancer clinical trials)**

**Urogynecology:**
Matthew A. Barker, MD, FACOG

If you have any questions or would like to make a referral to the Avera Digestive Disease Institute, call 605-322-7797.
Dear Colleagues,

Disease of the upper gastrointestinal tract is gaining increased attention from physicians and patients alike, as more and more people report symptoms of gastroesophageal reflux disease (GERD). In fact, 50 percent of people will suffer reflux to some degree at some point in their lifetime, and 10 to 15 percent of the population will have significant reflux disease.

Fortunately, this disease has numerous effective treatment options, so that most patients do not suffer serious long-term complications. Yet left untreated, GERD can result in ulcerations, narrowing and strictures of the esophagus. Patients can develop Barrett’s esophagus, in which cells of the esophagus change to resemble cells of the stomach and intestine. This condition increases risk for the development of esophageal adenocarcinoma, which is growing in numbers.

When a patient develops swallowing disorders or other symptoms of the upper GI tract, we at the Digestive Disease Institute realize how critical it is to properly diagnose and rule out serious conditions, including cancer and pre-cancerous states.

This issue of Digestive Trac explores the common conditions of the upper GI tract, which progress in severity from GERD and eosinophilic esophagitis, to Barrett’s esophagus, to esophageal and gastric cancer.

Dedicated to providing the highest quality care, our multidisciplinary team offers a full range of diagnostic tools, including esophagogastroduodenoscopy (EGD), barium X-ray, Bravo wireless pH monitoring, 24-hour pH impedance testing, and endoscopic ultrasound. We also offer the latest treatment options, including minimally-invasive surgical techniques such as radiofrequency ablation (RFA), Nissen fundoplication, and gastrointestinal endoscopic mucosal resection (EMR). For diagnoses of upper GI malignancies, our team is ready to strive toward best possible outcomes through a multidisciplinary approach of surgery, medical oncology and radiation therapy. We invite you to read about these specific aspects of our program in this issue.

It is our continuing goal, as well as our privilege, to work closely with primary care physicians for our patients’ best interest and continuity of care. Please feel free to contact us at (605) 322-7797 with questions or for more information.

Sincerely,

Scott L. Baker, MD, FACS
Colorectal Surgery
Surgical Institute of South Dakota

Steven Condron, MD, MHES, FACP
Gastroenterology and Hepatology
Avera Medical Group Gastroenterology

To learn more, visit our website at www.AveraDigestiveDisease.org
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