Diaphragmatic hernias

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The diaphragm is a fibromuscular septum. Its main functions are inspiration and separation of the thoracic cavity from the abdominal cavity. There are many openings which permit the passage of structures from the thoracic cavity to the abdominal cavity and vice versa. The structure which is concerning with this study is the esophagus which passes through an opening in the diaphragm at thelevel 10th of thoracic vertebra. The cardiac sphincter is a physiological sphincter which prevents regurgitation of gastric contents from the stomach and this important function is augmented by six factors:-1.The pinch cock action of the right crus.2.Valvular effects of the esophagogastric angle.3.The rossette-like fold of the gastric mucosa at the cardia.4.The presence of a length (about 4 cm) of intraabdominal esophagus.5.Circular muscle fibers around the lower end of the esophagus.6. A band of muscle which presents in the fundus of stomach and passes around the esophago-gastric junction.The diaphragmatic hernia is classified into congenital, traumatic and acquired hernias. Congenital hernias occur at certain well recognized points and are due to a failure of fusion of the various elements which make the diaphragm and are classified into: A. Bochdolek hernia: It is due to persistant pleuroperitoneal canal which normally close at the 6th week of gestation. Infants have severe respiratory symptoms within the first 24 hours and have a high mortality rate. A plain x ray will confirm the diagnosis. A prenatal diagnosis by ultrasonography would permit arrangement for the foetus to be born at a neonatal surgical unit. Infants must be travelled rapidly to pediatric centre,resuscitation is done with positive mechanical ventilation with 100% oxygen then dealing with the hernia B. Hernia through the foramen of Margagni: The defect lies between the sternal and costal attachments of the diaphragm and is therefore situated anteriorly. The patient is asymptomatic and the diagnosis is made more often in adult which is established by chest roentgenogram. The treatment is done by surgical closure of the defect. C. Eventration: This condition is due to atrophy and loss of muscle, part or all of one leaf of the diaphragm, which becomes fibrous tissue covered with pleura and peritoneum. The thin, flaccid diaphragm is raised and immobile. Symptoms are uncommon and the condition is usually discovered on routine x-ray, if respiration is embarrassed plication of the diaphragm is indicated. Traumatic diaphragmatic hernia: Rupture of the diaphragm, may be due to a penetrating injury,follows severe crush injury to the abdomen (accident or fall from a height). It is a bursting injury and produces a long linear tear in the dome of the diaphragm with herniation of the stomach and/or the transverse colon. There is often a delay in making the diagnosis untill distension of the stomach and

respiratory embarrassment occur. The intial radiographic examination should reveal the diagnosis. Repair of the hernia should always be taken with minimum delay. Hiatus hernia: There are three types of hiatus hernia according to the situation of the gastroesophageal junction in relationship to the hiatal orifice.1.The sliding hiatus hernia: About 85 % characterized by the ascent of the gastroesophageal junction within the mediastinum.2.The paraesophageal hernia: About 5 % characterized by maintenence of the gastroesophageal junction within the abdominl cavity with intrathoracic rolling of the gastric fundus.3.Mixed hernia: About 10 % representing a combination of these two mechanisms.In sliding hernia, the symptoms are more typical of reflux with regurgitation, epigastric burning, dysphagia and belching occuring after meal and diagnosed by radiologic studies. In paraesophageal hernia, the gastroesophageal junction is not disturbed and the competence of the cardia is not impaired. Symptoms therefor rarely appear untill the hernia is large, and they are intermittent dysphagia, cardiac symptoms due to pressure on the heart, bouts of hiccough from irritation of the phrenic nerve. Symptoms of a mixed hernia are variable depending on the degree of reflux. There are twosoivestrou. The first group is used to diagnose the hernia and to establish the existence of esophagitis and/or reflux.This include radiography, endoscopy, and esophagogastric scintigraphy. The second group has the objective of linking functional symptoms, often a typical in nature, to a possible esophagogastric reflux and in certain cases, to plan and control the efficiency of surgical treatment.These are manometric study, PH monitoring, acid perfusion test.The most common complications of hiatus hernia are:1.Gastroesophageal reflux with esophagitis of various degrees.2.Ulceration and bleeding.3.Respiratory complications.4.Incarceration of the herniated organ.The treatment of hiatus hernia may be medical or surgical. The medical treatment based on weight reduction, anti_acids, avoidance of heavy work, correction of anaemia if possible.Surgical treatment is indicated when symptoms are not controlled by medical treatment or the presence of complications. The aim of surgical repair is to:1.Replace the normal esophagogastric junction below the diaphragm.2. Produce an antireflux measures by encircling the abdominal esophagus by the gastric fundus. This may be either total encirclement by Nissen fundoplication wich is done by the abdominal approach or by partial encirclement, either infront or behind the esophagus by the Belsey mark IV operation wich is performed by the transthoracic route and comprises an esophagocardiac invagination. Other operations wich are sometimes done as:I. Hill gastropexy, wich is a median arcuate posterior gastropexy.2. Collis gastroplasty, wich is performed through a thoracoabdominal incision.It is of special vlaue if the esophagus is short due to previous esophagitis. A tube of stomach is made wich has the effect of extending the esophagus to the abdomen. The esophageal hiatus is then reduced in size around this tube.3.Anglechik prosthesis: In this technique, after reduction of the hernia, a plastic ring is placed aroundthe esophagogastric junction.