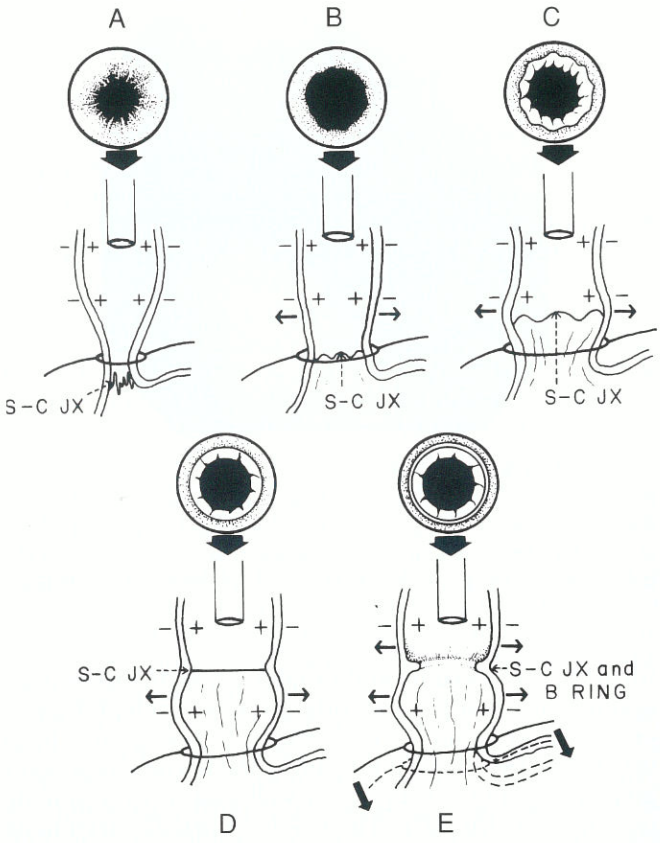
reflux sequelae. The location of the diaphragmatic hiatus in relation to the proximal stomach, the level of the SCJ, and the proximal extent of the gastric mucosal folds in the hernia pouch are characteristics used in the precise endoscopic diagnosis of hiatus hernia and reflux sequelae, including the earliest stages of a columnar-lined esophagus(Barrett's esophagus). The levels of these landmarks should be recorded on every esophagoscopy report.

In evaluating patients with a known or suspected hiatus hernia, it is appropriate to use more than minimal air insufflation. The radiologist makes use of changes in patient position and increased amounts of barium to demonstrate the same anatomy. Because patients with hiatus hernia tend to belch frequently, a considerable amount of insufflated air may be required to adequately demonstrate the landmarks discussed. Sliding esophageal hiatus hernias are common, particularly in older patients. Nevertheless, it is important to attempt to demonstrate this entity by radiography or endoscopy or both in all patients, especially those with upper gastrointestinal or pulmonary symptoms. If the endoscopic criteria are used with the radiographic criteria of Wolf,[3] it is not difficult to recognize a sliding hiatus hernia. It is the clinician's responsibility to determine whether this finding in the individual patient is significant. If neither the radiologist nor the endoscopist diligently reports this entity, the patient's physician may not suspect a reflux-related etiology for atypical or obscure complaints. The important relationship between the anatomic defect of a hiatus hernia and gastroesophageal junction incompetence is being documented and better understood by sophisticated physiologic studies.[11]

The endoscopic appearance of the esophagus and proximal stomach after antireflux surgery is discussed in Chapter 52: Endoscopy in the Postoperative Upper Gastrointestinal Tract.

LOWER ESOPHAGEAL B RING OR SCHATZKI RING

With inflation of the distal esophagus, the SCJ gradually changes from its usual serrated appearance to a straight line in many patients (Fig. 42–12*A–D*). Adding a bit more air or a Mueller maneuver (i.e., inspiration against a closed glottis) by the patient to enhance negative intrathoracic pressure and thereby increase the effect of positive intraluminal pressure maximally distends the hiatus hernia pouch distally and the esophageal lumen proximal to the SCJ (Fig. 44–12*E*). The line of junction between the two types of mucosa at the normal location has limited distensibility, and with optimum distention, it often protrudes into the lumen as a perfectly straight, weblike elevation around the entire circumference of the lumen. The lower esophageal B ring may be clearly demonstrated during antegrade and retrograde endoscopy using the same breathing maneuvers as previously mentioned, illustrating the precise anatomic relationship between the SCJ and the lower esophageal ring (see Figs. 44–10 and 44–11). This mucosal junction corresponds with the location of the lower esophageal or B ring. The radiologist can readily demonstrate this in a patient with a hiatus hernia by distending this same region with an adequate quantity of barium. The B ring indicates a hiatus hernia, whether demonstrated by radiography or endoscopy.[3]



☐ **FIGURE 44-12**

Schematic representation of the sequence of anatomic changes leading to demonstration of a hiatus hernia and a lower esophageal B ring by gradual inflation and luminal distention during endoscopy. *A,* View as the sphincter region is first opened. *B,* Further inflation opens the sphincter region and brings the SCJ (S-C JX) to the level of the diaphragmatic hiatus. *C,* Further inflation brings the SCJ above the hiatus margin. Negative intrathoracic pressure enhances luminal distention. *D,* With further inflation, the SCJ changes from an irregular, serrated, or undulated contour to a straight line. A hiatus hernia pouch is now clearly visible. *E,* With further inflation or by having the patient sniff or perform a Mueller maneuver (inspire against a closed glottis), the combination of intraluminal positive pressure and intrathoracic negative pressure causes the SCJ to protrude into the lumen as a smooth, symmetric lower esophageal B ring.

Close inspection reveals that the B ring forms precisely at or within 2 to 3 mm proximal to the SCJ (see Fig. 44–11). When the B ring appears and disappears with various degrees of lumen distention, it is considered a dynamic phenomenon. If the ring manifests with minimal air distention, especially if it significantly compromises the lumen diameter, it is considered a static structure and called a Schatzki ring. Both dynamic and static rings are 3 mm or less in thickness, and are symmetric around the entire circumference. Close inspection of the B ring from the distal side by retroversion may reveal varying degrees of squamous mucosa extending circumferentially in an irregular line 2 to 3 mm caudad to the apex of the ring.