Chirurgia (Bucur). 2026;121(5):527-540
http://dx.doi.org/10.21614/chirurgia.3414

**Diaphragmatic Relaxation Incisions: Clinical Evidence and Surgical Technique**

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**Abstract**

*Background:* Diaphragmatic relaxing incisions represent an important technical adjunct in the surgical management of large and complex hiatal hernias, particularly when primary crural approximation cannot be achieved without excessive tension. Despite advances in minimally invasive surgery and mesh reinforcement techniques, hiatal hernia repair continues to be associated with substantial recurrence rates, largely attributed to persistent axial and radial tension at the esophageal hiatus.

*Methods:* This article reviews the pathophysiological rationale, surgical techniques, clinical outcomes, and potential complications associated with diaphragmatic relaxing incisions. Both right- and left-sided relaxing incisions have been described, each presenting distinct anatomical considerations, technical advantages, and potential limitations. Management of the resulting diaphragmatic defect remains controversial, particularly regarding the optimal choice between biologic and synthetic mesh and their long-term safety profiles. In addition, we present a retrospective analysis of eight patients with complex paraesophageal hernias who underwent laparoscopic repair using diaphragmatic relaxing incisions, illustrating the practical indications, technical decision-making process, and short-term clinical outcomes associated with this approach.

*Results:* Although relaxing incisions reliably facilitate tension-free hiatal closure and improve intraoperative feasibility, current evidence suggests that their impact on long-term recurrence remains limited when used in isolation. Potential complications, including transdiaphragmatic herniation, pleural effusion, and mesh-related adverse events, must therefore be carefully considered during surgical planning.

*Conclusions:* Overall, diaphragmatic relaxing incisions should not be regarded as a standalone solution but rather as one component of an individualized surgical strategy that may also include selective mesh reinforcement, gastropexy, and esophageal lengthening procedures in appropriately selected patients.

**Keywords:** diaphragmatic relaxing incisions, right- and left-sided incisions, hiatal mesh reinforcement, laparoscopic hiatal repair, hernia recurrence, mesh-related complications, synthetic vs biological mesh, hiatal defect size