



PROGRESSION OF HIATAL HERNIAS

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INTRODUCTION

- High recurrence rate has been the Achilles heel of hiatal hernia repair and antireflux surgery.
- Hiatal hernia is an anatomical disease, and higher incidence observed on radiological and endoscopic studies in elderly patients suggests that it is also progressive in nature.
- Better understanding of the underlying mechanisms of hiatal hernia progression may help reduce future recurrences.

METHODS

- After obtaining Institutional Review Board approval, we queried a prospectively maintained esophageal database to identify patients who underwent foregut surgery for a benign indication at our center (Figure 1).
- We retrospectively reviewed surgical data of patients who underwent primary hiatal hernia repair by a single surgeon (SKM).
- In all patients, the indication for surgery was gastroesophageal reflux disease, paraesophageal hernia, or both.
- The dimensions of the pie-shaped hiatal defect (anteroposterior and transverse dimensions) were measured intraoperatively (Figure 2A). The defect size, referred to as the hiatal surface area (HSA), was calculated using a standard geometric formula (Figure 2B).
- We compared the dimensions of the HSA with patient age, body mass index, and height.

POPULATION STUDY

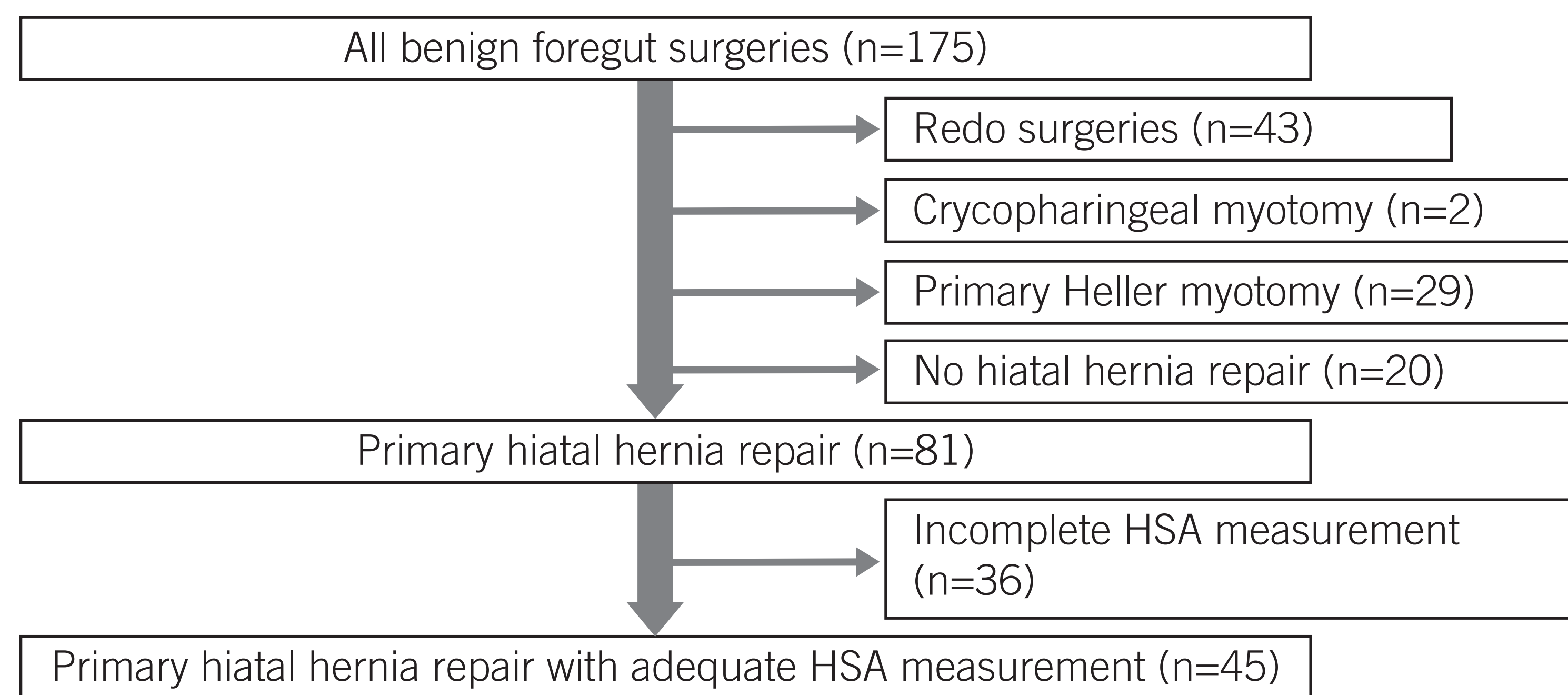


Figure 1. Flowchart showing patient selection

DISCLOSURE STATEMENT: This study contains no off-label or investigational use of any device. None of the authors has a financial relationship with a commercial entity that has an interest in the subject of the presented material or other conflicts of interest to disclose.

- Intraoperative measurements were available for 45 patients. The mean age was 65.35 ± 11.54 years. 30 patients (66.7%) were women, and the mean body mass index was 28.42 ± 5.20 kg/m².
- The mean transverse dimension was 2.81 ± 0.94 cm, and the mean anteroposterior dimension was 4.50 ± 0.65 cm. The mean HSA was 7.58 ± 2.98 cm².

Figure 2. Hiatal measurement method, introduced by Granderath et al.¹

Figure 2A.

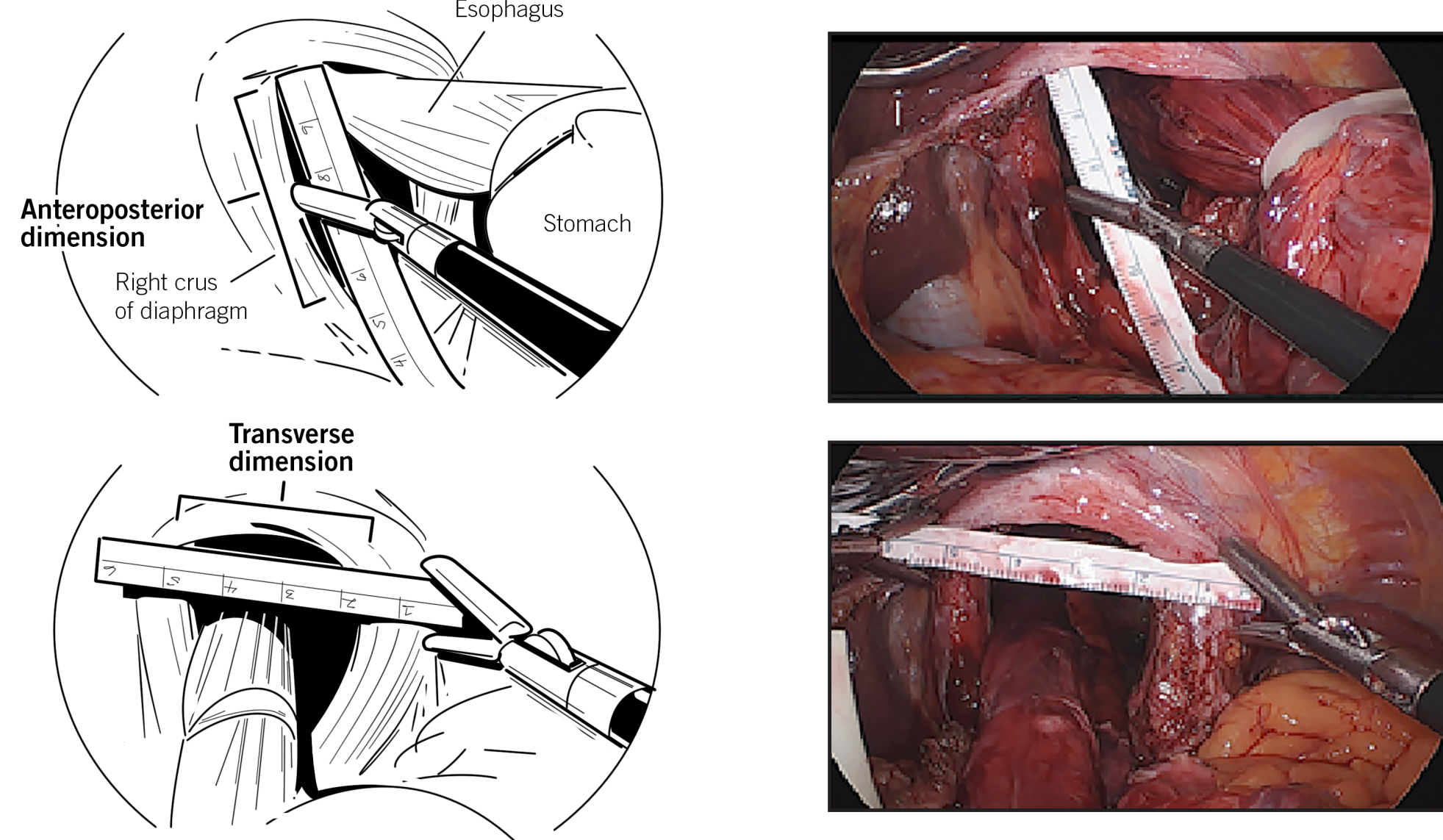
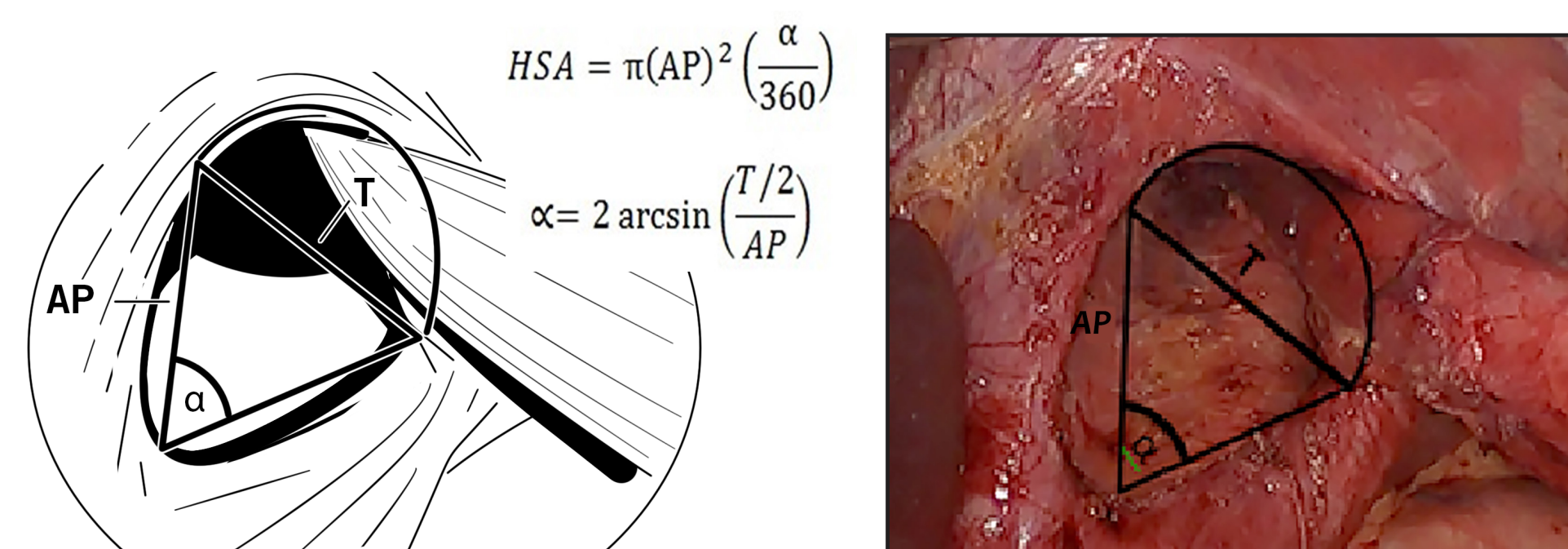


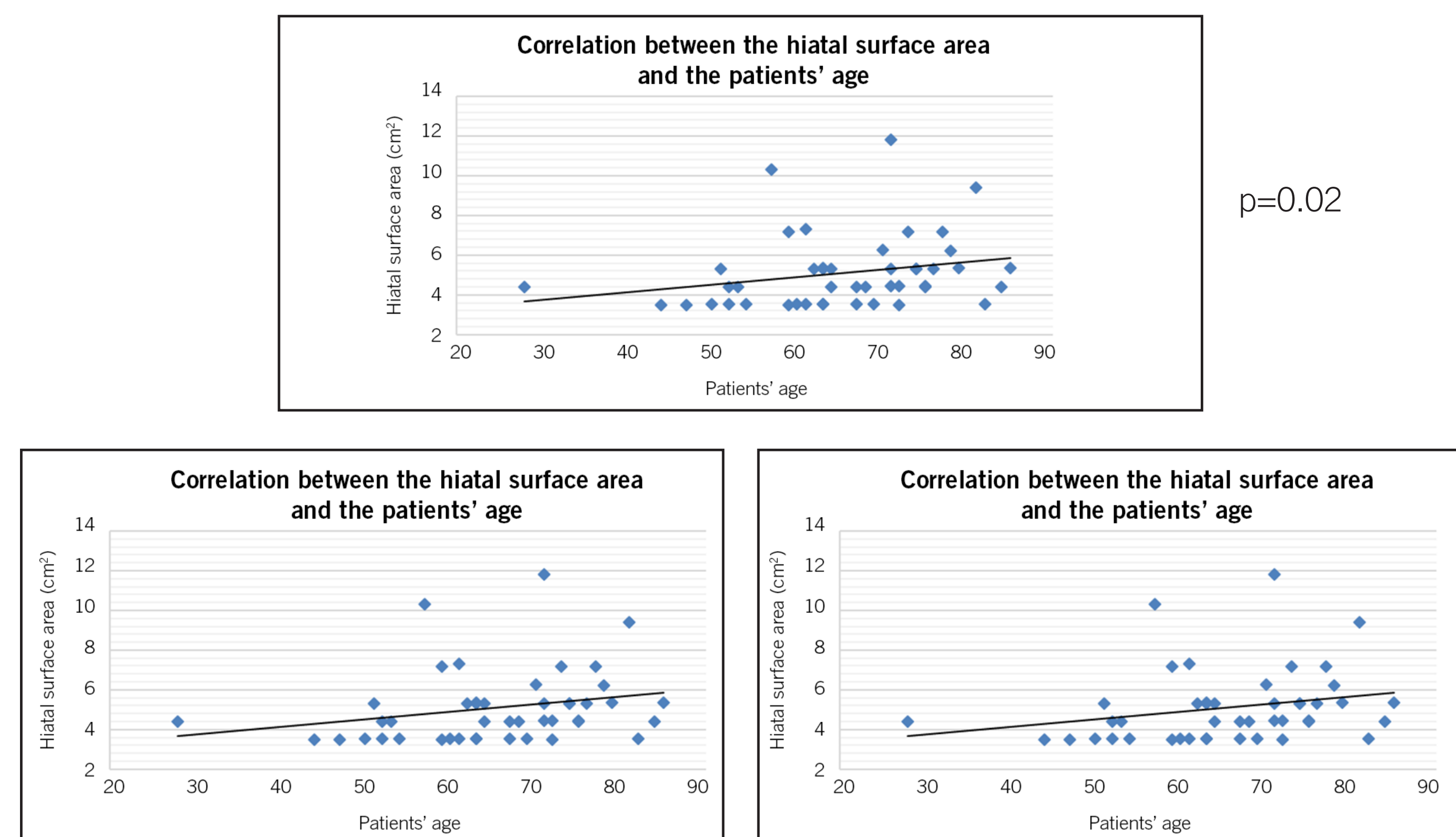
Figure 2B.



RESULTS

- Patient age showed significant positive correlation with the amount of herniated stomach ($rs=0.51$, $p<0.001$), the transverse dimension ($rs=0.35$, $p=0.02$), and the HSA ($rs=0.36$, $p=0.016$; Figure 3).
- Patient age was not correlated with the size of the anteroposterior dimension. The crus length had no significant correlation with any parameters ($p>0.05$), but tended to increase with patient height ($rs=0.28$, $p=0.06$).

Figure 3. Correlations between patients' anthropomorphic parameters and interoperative hiatal measurements.



CONCLUSIONS

- Our study provides one of the first hypotheses regarding the possible progression of hiatal hernias.
- The transverse dimension of a hiatal defect significantly increases with a patient's age.
- The anteroposterior dimension remains constant over an adult's lifetime.
- We also modified the primary hiatal closure, which may help reduce recurrence rates in the future.²

REFERENCES

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2. Blake AM, Mittal SK (2018). Long-term clinical outcomes after intrathoracic stomach surgery: A decade of longitudinal follow-up. *Surg Endosc.* 32(4):1954–62.

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