it is unclear how age, severity of oesophageal acid exposure and dysmotility are related to the different postural types of GORD.

Methods From March 2006 to July 2010, 1242 patients with GORD symptoms had high resolution manometry (HRM; Manoscan 360, Sierra) and 24-h catheter-based pH-monitoring (Slimline™, Medtronic) performed. 124 consecutive patients with both pathologic reflux and HH were collected. Patients were classified as Upright (n = 24), Supine (n = 38) or Bi-positional (n = 62) predominant reflux. Total (TR > 4.2%), upright (UR > 8.15%) and supine (SR > 3.45%) reflux parameters were used to classify GORD into position subtypes. HH was defined as Type II (lower oesophageal sphincter (LOS)-crural diaphragm (CD), 1–2 cm) and Type III (LOS-CD > 2 cm) in accordance with the Chicago Classification. Student's t test, χ^2 tests and Mann-Whitney-U test were used for statistical analysis.

Results Mean $\pm$ SD age was 54 $\pm$ 14 years (range 16–85 years; 64 males). Patients with Bi-positional reflux (57 years) were older than those with Supine (49 years) (p = 0.013) or Upright reflux (53 years) (p = 0.04). Furthermore the severity of oesophageal acid exposure (TR, UR and SR) was greater in the Bi-positional (18.1%, 17.6%, 19.7%) than Supine (8.6%, 4.8%, 14.8%) (p < 0.001) or Upright (8.5%, 12.8%, 1.1%) (p < 0.001) reflux group. Total supine reflux episodes in the Supine group were fewer in number (54) compared to the total upright reflux episodes in the Upright group (127) (p < 0.001), although the total reflux time was similar in both positions (124 min supine vs 127 min upright; p = NS). Although there was no significant difference in the mean peristaltic wave contractility and velocity between the three groups, the % of successful peristalsis was higher in the Upright (65%) than Supine (54%) or Bi-positional (52%) GORD group (p = 0.008 and p = 0.001, respectively). Patients with Type III HH were older (mean age 57 years; n = 71) than Type II HH (mean age 50 years; n = 53) (p = 0.013). There was no difference in HH length between the GORD position subtypes (range 2.0–8.4 cm). Although there was no difference in TR, UR and SR, the LOS basal pressure was lower in Type III (8.9 mmHg) than Type II (12.0 mmHg) HH patients (p = 0.05).

Conclusion In patients with manometry-proven HH who present with symptoms suggestive of GORD, Bi-positional and Supine reflux predominance are associated with more severe disease and are more likely to be associated with failed peristalsis. Furthermore Bi-positional reflux disease is more common with increasing age as is Type III HH.

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Keywords GORD, hiatus hernia, high resolution manometry, pH monitoring.

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THE PATTERN OF OESOPHAGEAL ACID EXPOSURE AND OESOPHAGEAL PRESSURE MORPHOLOGY IN PATIENTS WITH HIATUS HERNIA

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Introduction Gastro-oesophageal reflux disease (GORD) generally presents as pathological Upright, Supine or Bi-positional reflux. Hiatus hernia (HH) and dysmotility are common in chronic GORD. However, in the presence of HH,