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The effect of age on pelvic floor dynamics

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Abstract. Anorectal function is known to be influenced by age but there is only scanty information about the effect of ageing on pelvic floor dynamics. Pelvic floor movements were assessed by videoproctography in two groups of ten control females (mean age of 30.5 and 60.7 years, respectively). A significantly lower pelvic floor position was found at rest in the older group ($p=0.02$), but younger controls showed an increased pelvic floor descent during straining ($p=0.01$). These results suggest that the pelvic floor is affected by progressive denervation but descent during straining tends to decrease with advancing age.

Introduction

Anorectal function is influenced by age [1–3]. Disorders of defaecation such as anal incontinence and rectal prolapse are predominantly found in advanced age, whilst most cases of severe constipation are usually observed in the second or third decades. Although electrophysiological and manometric studies have been performed to assess changes in the external sphincter with age [1, 2, 4] there is only scanty information on the effect of age on pelvic floor function [3]. The aim of this study has been to observe the effect of ageing on pelvic floor dynamics in normal subjects.

Methods

Videoproctography was performed in 20 control females having herniorraphy, cholecystectomy or mastectomy with no colorectal or anal symptoms. They were divided in two age groups. In the younger group (group A) the mean age was 30.5 years and in the older group (group B) the mean age was 60.7 years. No patient with disordered defaecation was included.

Videoproctography was performed using previously described techniques [5]. Pelvic floor position at rest was defined as the distance from the pubococcygeal line to the anorectal junction (Fig. 1). Assessment of pelvic floor movement was obtained by measuring any variation from the rest position during contraction (ascent) or attempted defaecation (descent).

Statistical analysis was performed using the Wilcoxon rank-sum test for comparison and the Spearman rank test. Unless otherwise stated, values are given as mean and range.

Results

The pelvic floor was found to be at a significantly higher position at rest in group A (2.4 cm; 0.5–3.9) than in group B (3.7 cm; 1.0–7.5) ($p=0.02$) (Fig. 2). Significantly greater pelvic floor descent was observed during straining in group A (3.9 cm; 0–6.8) than in group B (2.0 cm; 0–3.3) ($p=0.01$) (Fig. 3). No significant difference was found in the extent of movement during pelvic floor contraction between the groups (group A: 0.7 cm, group B: 1.1 cm) ($p=0.2$). A significant correlation was found between age and pelvic floor descent during straining ($r=0.46$; $p<0.05$) (Fig. 4). A significant correlation was also found between the pelvic floor position at rest and the descent observed during straining ($r=0.55$; $p<0.05$) (Fig. 5).

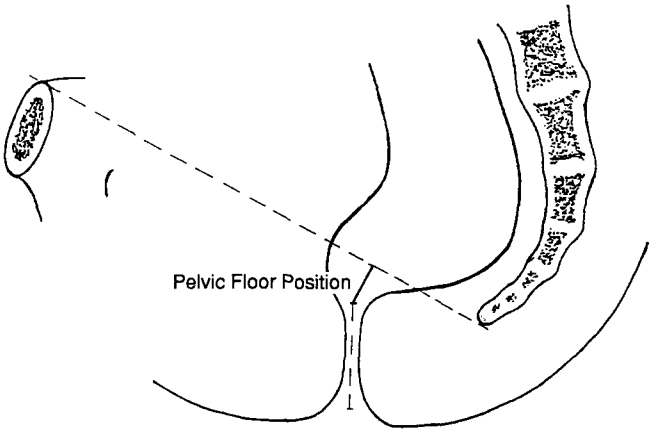

Fig. 1. Measurement of pelvic floor position

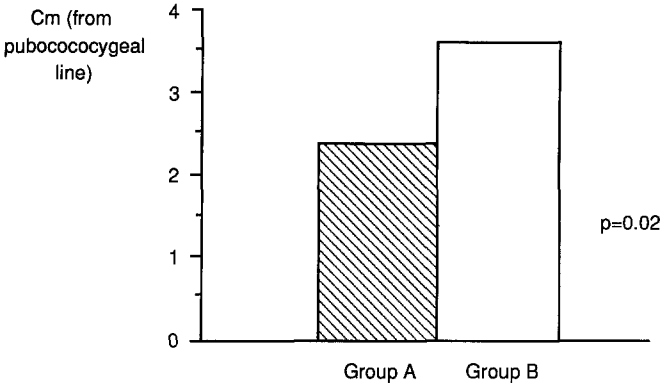

Fig. 2. Pelvic floor position at rest in relation to the pubococcygeal line

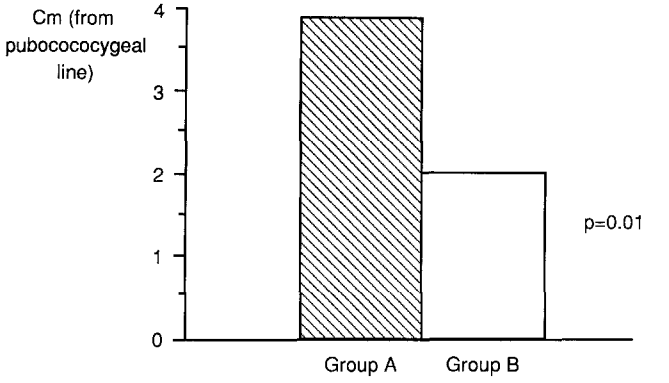

Fig. 3. Pelvic floor position during straining in relation to the pubococcygeal line

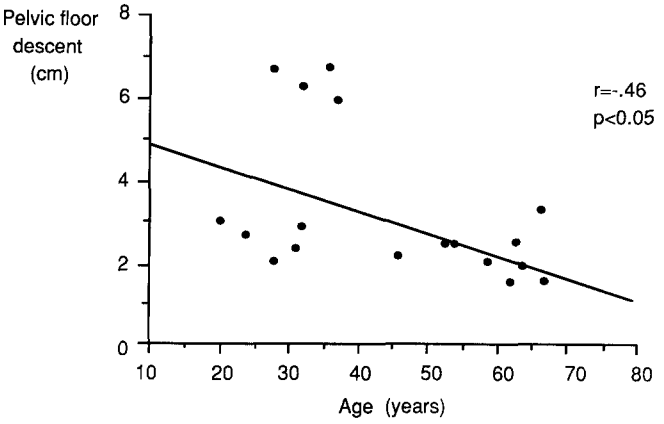

Fig. 4. Correlation between age and pelvic floor descent during straining

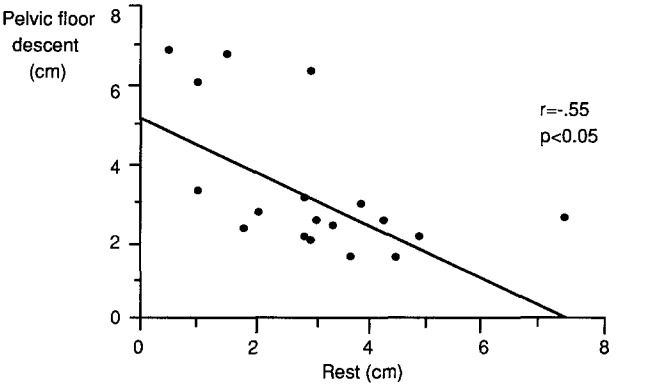

Fig. 5. Correlation between age and the difference between the pelvic floor position at rest and straining

Discussion

The results obtained from this study suggest that pelvic floor function is influenced by age. However, we did not extend our studies to include measurement of fibre density or pudendal nerve terminal motor latency. The lower rest position observed in older patients is probably explained by the progressive denervation of the pelvic floor in these patients, even though clinical symptoms may never occur [6]. However, this denervation does not seem to affect the amount of pelvic floor descent during straining as suggested by Parks et al. [7]. Indeed, descent during straining was found to decrease with advancing age. These observations suggest that intra-abdominal pressure may play a role in determining the amplitude of pelvic floor descent.

The higher pelvic floor position at rest and increased pelvic floor descent during straining found in younger subjects indicate that there is far greater potential for the pelvic floor position to change in youth. Conversely, the lower rest position and reduced descent observed in elderly controls suggests that pelvic floor movements are reduced in the elderly despite the absence of clinical symptoms.

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