EVALUATION OF LOCAL INFLAMMATORY RESPONSE TO INGUINAL HERNIA REPAIR: TENSION-FREE VERSUS CONVENTIONAL HERNIOPLASTY

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ABSTRACT

Objective: This study was designed to quantitate the cytokine response directly in the skin wound in relation to control skin specimen obtained from the contralateral side to the original incision.

Patients and Methods: This study included 100 male patients with unilateral indirect inguinal hernia categorized into two groups; n=50 patients, tension-free hernioplasty (TFH) group and Shouldice hernioplasty (SH) group. All patients gave blood samples for determination of total leucocytic count (TLC), neutrophils percentage and serum C-reactive protein (CRP). At the end of surgery, two skin specimens were obtained from the wound edge and from the contralateral groin (Control group) and tissues were processed and used for determination of tissue extract concentration (TEC) of interleukin-1β (IL-1β), IL-6 and tumor necrosis factor-α (TNF-α).

Results: The mean duration of surgery was 68.9±18.9 minutes and was significantly shorter in TFH group. Leucocytosis and neutrophilia were reported in both groups with a significant (P<0.05) difference at 24-hrs and one week after surgery compared to preoperative counts with a significant (P<0.05) increase in SH group. TEC of IL-6 and TNF-α showed significant increase in both studied groups, whereas TEC of IL-1β showed a significant (P<0.05) increase in SH and non-significant (P>0.05) increase in TFH group compared to control levels. Furthermore, TEC of IL-1β and TNF-α showed a non-significant (P>0.05) increase in SH group compared to TFH group, while TEC of IL-6 showed a significant (P<0.05) increase in TFH group compared to SH group. There was a positive significant correlation between duration of surgery and TEC of IL-1β and IL-6 in both groups and with TNF-α in SH group.

Conclusion: It could be concluded that hernia repair is associated with upregulated inflammatory response that correlates with the extent of tissue trauma and duration of surgery; the two factors that can be minimized by using tension-free repair.

Keywords: cytokine response, Shouldice hernioplasty, tension-free hernioplasty.

INTRODUCTION

Inguinal hernia is a common condition, especially in men, appearing in all age groups and its repairs account for 10% of all general surgery procedures. However, the most effective method of repair of an inguinal hernia in any given patient is not clearly defined. Tension-free methods have been found to be superior to "conventional" tension-producing techniques, both in terms of rate of recurrence and patient-centered outcomes[1].

Recurrence of the hernia, the customary indicator of failure, occurs in 1-10% of patients undergoing a primary repair. Large specialty centers report rates of recurrence of less than 1% for open tension-free techniques. Recurrent inguinal hernias can be regarded as a consequence of a disturbed process of wound healing. In the proliferation phases, fibrillar collagens act as a scaffold for fibroblast attachment and change their composition through a complex