

Risk Factors for Incisional Hernia and Parastomal Hernia after Colorectal Surgery

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Incisional hernias, with an incidence of 9 to 38%, remain one of the most common complications after an incision of the abdominal wall [1-3]. An incisional hernia is defined as a protrusion of intraperitoneal structures through a defect in the anterior abdominal wall fascia [4]. This means that wound healing often fails to occur when multiple predisposing factors, including surgical site infection, malnutrition, diabetes, immunosuppression, and morbid obesity, are present [5].

Incisional hernias are almost universally regarded as technical failures. Technical factors are related to suture material selection, type of fascial closure, ratio of suture to incision length [5]. In spite of many advances, such as new procedures for closing the abdominal wall and new suture materials, the incidence of incisional hernias has not been reduced in recent decades because the developments of incisional hernias is also related to many factors affecting the patients.

Surgical site infection is one of the important risk factors for the development of an incisional hernia. Recently, Murray et al. [6] analyzed the incidence of incisional hernias related with surgical site infection in colorectal surgery. They reported that patients with a surgical site infection were 1.9 times more likely to have an incisional hernia than those without a surgical site infection (36.3% vs. 18.8%, $P \leq 0.01$). In clean-contaminated and contaminated surgery, such as colorectal surgery, the incidence of surgical site infection has been reported as 3 to 30% [7, 8]. Thus, in colorectal surgery, more effort to prevent surgical site infection is needed.

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Morbid obesity is another important risk factor for the development of an incisional hernia and a parastomal hernia [9, 10]. Schreinemacher et al. [9] reported that hernias were more prevalent in patients with morbid obesity (body mass index of 30 and higher) and in patients with a temporary stoma wound (25.8% vs. 59.1%). De Raet et al. [10] reported that a waist circumference in excess of 100 cm increased the risk of developing a parastomal hernia (odds ratio, 1.009; 95% confidence interval, 1.002 to 1.016).

Other factors, such as anemia, hypoproteinemia, malnutrition, diabetes, immunosuppression, male gender, and old age, are related to surgical wound dehiscence and incisional hernias [11]. Conditions that increase abdominal pressure, such as coughing, vomiting, distention, and ascites, also increase the incidence of incisional hernias. Surgeons have to be aware of poor wound healing conditions to prevent incisional hernias. Perioperative efforts to reduce risk factors and to select proper technical methods of wound closure are essential if the incidence of incisional hernias is to be reduced.

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