

EMERGENCY TREATMENT OF INCISIONAL HERNIA – A RETROSPECTIVE SINGLE-CENTER STUDY

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Abstract

Postoperative incisional hernia remains an important complication of open surgery, with an incidence of about 20%. Emergency treatment of this pathology can be a challenge for the surgeon. Knowing the high relapse rate of the simple suture of the parietal defect, the use of a prosthesis is often necessary. Emergency treatment often involves the presence of an intraoperative septic time, given both by the need for an intestinal resection for a strangulated incisional hernia, as well as by the presence of other septic processes that require emergency interventions, the eventration being an associated pathology, its treatment completing the main intervention. We present a retrospective study carried out in the Surgery Clinic 1 of the Targu Mures Emergency Clinical County Hospital between January 2020 and October 2022, which included all patients with postoperative eventration operated under emergency conditions. Out of the 203 patients operated for postoperative eventration during the period, 64 were in the emergency regime and introduced in the study. The surgical indication was caused by a complication of the post-incisional hernia or by another associated pathology that required surgery. Group 1 (L1= 43) - patients with complicated incisional hernia. Group 2 (L2= 21) - patients with an uncomplicated incisional hernia but with emergency intervention for associated pathology. Mesh was used significantly statistic more frequent at L1(24), septic intraoperative time were significantly statistic more frequent at L2 (16). Mortality was high in both groups L1(9), L2(4). Cutaneous necrosis was the most frequent local complication (L1-2, L2-1).

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Introduction

Postoperative incisional hernia remains an important complication of open surgery, with an incidence of about 20% [1]. Emergency treatment of this pathology can be a challenge for the surgeon. Knowing the high relapse rate of the simple suture of the parietal defect, the use of a prosthesis is often necessary. Emergency treatment often involves the presence of an intraoperative septic time, given both by the need for an intestinal resection for a strangulated incisional hernia, as well as by the presence of other septic processes that require emergency interventions, the eventration being an associated pathology, its treatment completing the main intervention. Preoperative training is suboptimal which negatively influences postoperative outcomes [2].

The purpose of this paper is to evaluate the postoperative results of patients with incisional hernia treated in an emergency.

Material and Methods

We present a retrospective study carried out in the Surgery Clinic 1 of the Targu Mures Emergency Clinical County Hospital between January 2020 and October 2022, which included all patients with postoperative eventration operated under emergency conditions.

Exclusion criteria: patients with unoperated eventration, and patients with incomplete observation sheets.

The parameters followed were age, gender, the main diagnosis for which surgery was performed, the performed operation, the presence of intraoperative septic time, the dimensions of the parietal defect, postoperative complications, and the number of days of hospitalization.

The data were processed in the Excel program by Microsoft and statistics were performed with GraphPad 9.0 version statistics program using the Man Whitney test, for non-

parametric, unpaired data. The statistical significance was set at 0.5 with a confidence interval of 95%.

Results

Out of the 203 patients operated for postoperative eventration during the period, 64 were in the emergency regime and introduced in the study. The surgical indication was caused by a complication of the post-incisional hernia or by another associated pathology that required surgery.

We divided the patients into two groups:

- Group 1 (L1=43) - patients with complicated incisional hernia;
- Group 2 (L2=21) - patients with an uncomplicated incisional hernia but with emergency intervention for associated pathology.

In Group 2 were introduced patients with

- adhesion syndromes and volvulus on the brida (n=26%),
- occlusive colon tumors (n=26%),
- acute lithiasis, and non-lithiasic cholecystitis (n=26%),
- perforated ulcers (n=8,6%),
- acute appendicitis (n=4,3%),

post-traumatic spleen lesions (n=4,3%), associated with eventrations with parietal defect of different sizes.

Depending on the size of the parietal defect the patients were classified as small eventrations (W1) with defects between 1 and 4 cm, medium parietal eventrations (W2) with defects between 5 and 10 cm, and large eventrations (W3) with defects over 10 cm according to the EHS classification (European Hernia Society) [3].

The distribution by age decades is represented in Figure 3. The evaluated criteria of the patients along with the results from the studied groups are presented in Table 1.

When the groups were compared according to the European Hernia Society no statistical significance was obtained (Table 2).

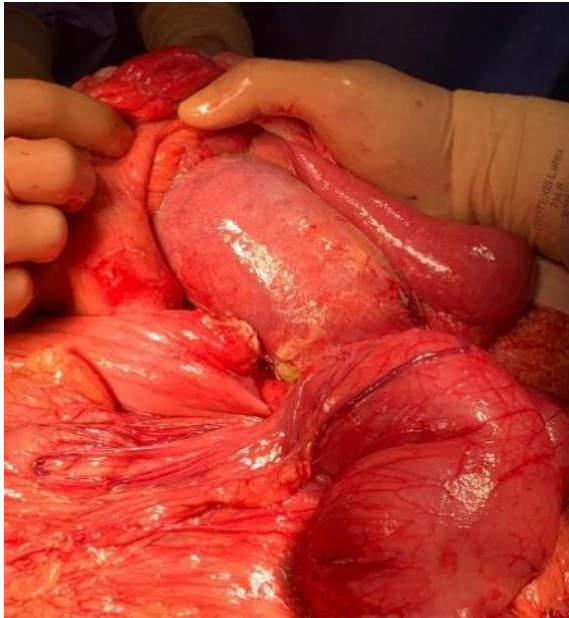


Figure 1 – Incisional hernia with loss of the right to home post-cesarean section with acute intra-sacular cholecystitis - preoperative image



Figure 2 - Eventration with loss of the right to home post-cesarean section with acute intra-sacular cholecystitis - intraoperative image

	L1	L2	P value
No patients in each group	n=41	n=23	
Gender (no of women)	n= 27	n= 16	0.3
Incidence median age (years)	65.17 (min 43- max 85)	61.2 (min 31- max 88)	
Mesh plasty	n=24	n=5	0.008*
Intraoperative septic time	n=10	n=16	0.006*
The use of the mesh in septic time	n=5	n= 4	0.71
Complication			
Cutaneous necrosis	n=2	n=1	0.93
Haematoma	n=1	n=0	0.47
Occlusion	n=0	n=2	0.12
Death	n=9	n=4	0.68
Average days of hospitalization	7,48	6,8	

Table 1 - Comparison of the two groups according to the registered parameters. (*Statistically significant)

Parietal defect class	L1 (n= 41)	L2 (n=23)	p-value Mann Whitney test
W1	n= 5	n= 7	0.09
W2	n=22	n=13	0.83
W3	n=12	n=5	0.56

Table 2 - Parietal defect classes in the two groups

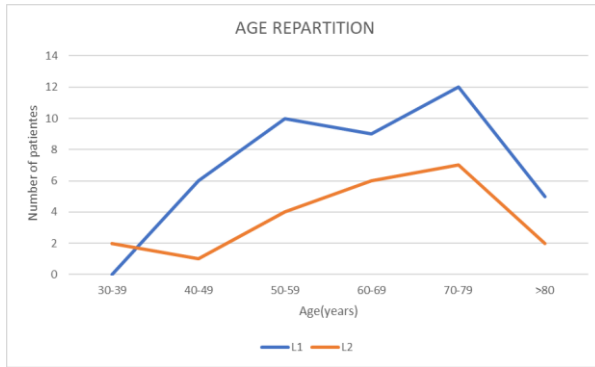


Figure 3 - Age distribution in the studied groups

Discussions

Although the study includes 2 years of the pandemic, in which elective surgeries were partially restricted, however, the number of patients included in the study is low, due to the reduced incidence of patients with postoperative eventration treated in an emergency, the preferred treatment being the elective one, a situation also encountered in the study of W. Dai et al, "Risk factors of postoperative complications after emergency repair of incarcerated groin hernia for adult patients: a retrospective cohort study" published in *Hernia* in 2019, a study that included 64 patients operated between 2010-2017 [4].

The predominance of the female sex in both groups ($p=0.3$) is contrary to other studies that show a higher incidence in the male sex [5], the difference possibly explained, by the reduced number of patients of the present study.

The higher incidence after the age of 60 in both groups coincides with the age identified as a risk factor in the recurrence of ventral hernias in a study published by S.G. Parker et al in 2021 in the *BJS Open*, along with obesity, smoking, and diabetes [6].

In both groups the parietal defect was mostly classified in the average class 53% in L1, respectively 56% in L2 ($p=0.83$). It should be noted that in the case of large parietal defects, the anterior or posterior separation of

the components was practiced, augmented or not by the polypropylene prosthesis

The intraoperative presence of a septic time in L1 was significantly lower than in L2 ($p=0.006$) because the strangulated hernia comprises just a possible diagnostic among the acute abdominal surgery [7]. The use of the prosthesis in the presence of septic time was insignificantly statistic higher in L2, a use imposed by the presence of large defects and parietal fragility of these patients

The use of the mesh although it was significantly more frequent in L1 than in L2 ($p=0.0008$) denotes the surgeon's reluctance to use it in poor conditions, being used only in cases of strict necessity. Postoperative complications were approximately equal in the 2 lots.

Cutaneous necrosis was present in very few cases in both groups (L1 - $n=2$ and L2 - $n=1$; $p=0.93$) and is provoked by the devascularization of the skin, at the time of preparation of the voluminous sacs, as well as by the interruption of the perforating arteries in the case of repair with preaponeurotic prosthesis or of the previous separation of the components [8].

The intestinal occlusion was present only in the case of L2 and is not related to the abdominal wall repair but rather to the intensity of the preoperative adhesion syndrome [9].

Another expected complication was wound infection, given the presence of septic times in both groups [10]. Although a prosthesis was used in the case of sepsis in our study no wound suppuration was encountered. One explanation would be the small number of enrolled patients, which does not provide sufficient statistical power.

Mortality was increased in both groups, according to other specialized studies, being explained both by the associated pathologies and the biological status of these patients [11].

Conclusions

The use of the mesh in emergency conditions, for repairing incisional hernias, must be done carefully, judging well the risks and benefits brought by it.

Incisional hernias operated in the emergency regime have high mortality regardless of the cause that required surgery.

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