ABCDDV/837

ABCD Arq Bras Cir Dig
2012;25(1):

Review Article

ABDOMINAL AND INGUINAL HERNIA IN CIRRHOTIC PATIENTS: WHAT'S THE BEST APPROACH?

Hérnias abdominais e inguinais em pacientes cirróticos: qual é a melhor conduta?

Felipe Duarte **SILVA,** Wellington **ANDRAUS,** Rafael Soares Nunes **PINHEIRO,** Rubens Macedo **ARANTES-JUNIOR,** Marcus Paulo Lemos **LEMES,** Liliana de Souza e Silva **DUCATTI,** Luiz Augusto Carneiro **D'ALBUQUERQUE**

From Transplantation and Liver Surgery, Hospital das Clinicas, Faculty of Medicine, University of São Paulo, SP, Brazil.

ABSTRACT – ***Background*** - Traditionally, elective abdominal procedures in cirrhotic patients have been largely discouraged due to high morbidity and mortality consequent to complications of cirrhosis, described by several authors. Other services, however, obtained different results, advocating in favor of elective surgery. ***Methods*** - A literature review using as key-words "abdominal wall hernia" and "cirrhotic patients" was performed using PubMed database. Twenty-eight articles were considered. ***Results*** - The incidence of abdominal wall hernias is relatively high in cirrhotic patients, specially those with ascites, and many of these are unfavorable and require specific surgical treatment. Currently, with the advent of MELD score for organ allocation, many centers are reconsidering their approach on leading these situations, since most of patients in question are on waiting list for liver transplantation. Thus elective surgery has achieved major position in managing this condition in order to reduce morbidity and mortality in these patients. Moreover, the quality of life was an important factor to be considered, being badly damaged in this condition. ***Conclusion*** - Few studies with large samples have been conducted so far and there is no consensus on which conduct is the most suitable taking into consideration rates of morbidity and mortality.

HEADINGS - Hernia. Cirrhosis. Ascites.

Correspondence:
Wellington Andraus,
e-mail wellington@usp.br

Financial source: none
Conflicts of interest: none

Received for publication:
Accepted for publication:

RESUMO - ***Introdução*** - Tradicionalmente os procedimentos abdominais eletivos em pacientes cirróticos têm sido amplamente desencorajados graças à elevada morbi-mortalidade consequente às complicações da cirrose, descritas por diversos autores. Outros serviços, em contrapartida, obtiveram resultados distintos, advogando a favor de cirurgia eletiva. ***Métodos*** - Uma revisão de artigos utilizando-se a palavras "abdominal wall hernia" e "cirrhotic patients" foi realizada na base de dados PubMed. Dos resultados obtidos, 28 artigos foram considerados para elaboração desta revisão. ***Resultados*** - Pôde-se observar que a incidência de hérnias em parede abdominal é relativamente elevada em pacientes cirróticos, sendo que muitas delas têm evolução desfavorável e requerem tratamento cirúrgico específico. Com o advento do sistema de alocação de órgãos baseados no escore de MELD, muitos centros estão repensando suas condutas em situações como esta, dado que muitos dos pacientes em questão encontram-se em lista de espera para transplante hepático. Dessa forma a cirurgia eletiva tem conquistado maior papel no manejo desta condição com intuito de diminuir morbi-mortalidade nesses pacientes. Além disso, a qualidade de vida mostrou-se um importante fator a ser considerado, estando muito prejudicada nesta condição. ***Conclusão*** - Poucos estudos com grandes amostragens foram conduzidos até o momento e não há consenso sobre qual conduta é a mais indicada levando em consideração taxas de morbi-mortalidade.

DESCRITORES - Hérnia. Cirrose. Ascite.

INTRODUCTION

The elective abdominal procedures in cirrhotic patients, among whom surgical repair of abdominal wall hernias, have been widely discouraged because of the high morbidity and mortality as a complication of cirrhosis. They include thrombocytopenia, coagulopathy, ascites, portal hypertension, renal failure, among others. Moreover, it is possible to observe an increased risk of postoperative liver decompensation and possible impairment of wound healing due to frequent bad nutritional state of the patients[17].

The stratification of these surgical patients can be done in various ways, and the Child-Pugh classification is frequently used. Garrison et al.[12] noted

that the post-operative mortality, both in elective and in urgency procedures, increased with the severity of the patient, stratified by Child criteria (death of 10%, 31% and 76% in Child groups A, B and C, respectively). Likewise, Mansour et al.[18] found similar data, with a mortality of 10%, 30% and 82% for groups Child A, B and C, respectively[18]. Using the MELD criterion (Model for End-stage Liver Disease), other authors have also shown an association between worse post-operative outcome in patients with cirrhosis and worsening of their liver function[5,7,9,11,15,22,28].

METHOD

A literature review using as key-words "abdominal wall hernia" and "cirrhotic patients" was performed using PubMed database. Twenty-eight articles were considered.

Abdominal wall hernias in the cirrhotic patient

The incidence of umbilical hernia in cirrhotic patients without ascites is very similar to that in adult patients without cirrhosis, around 3% 6. In contrast, some authors claim that about 20% to 40% of patients with cirrhosis and ascites develop abdominal wall hernias as a complication in the course of their disease. Factors such as weakness of the fascia and abdominal muscles due to bad nutritional state, enlargement of pre-existing opening in the supraumbilical fascia promoted by dilatation of the umbilical vein in patients with portal hypertension and, especially, increasing of abdominal pressure as the result of the ascites formation, are important contributors in the development of the hernias. Studies have shown that the probability of developing umbilical hernia increases with the number of episodes of ascites. About 70% of these patients will develop an umbilical hernia around the third episode[1].

Likewise, inguinal hernias are also common, although its incidence and natural history are not yet fully described[6]. Like the umbilical hernia, they may suffer the consequences of elevation of intra-abdominal pressure, mainly due to ascites, often progressing to the scrotum with the formation of large inguinal-scrotal hernias.

Complications of these hernias are common and related to the proportions they assume. Mortality rates can exceed 30%. In the presence of tension on the abdominal wall due to ascites, the skin in the hernial sac become very thin leading to loss of vascularization and risk of scarification, necrosis and rupture. This type of complication is common and can cause bacterial peritonitis with high mortality[20]. The strangulation, although rare especially in patients with ascites, is also serious complication of these hernias and accounts for about 10% to 20% of herniorrhaphies[26].

Recurrence of pre-treated diseases also occurs more frequently, as well as the appearance of incisional hernias of large proportions. In most cases the hernial ring is small and the large hernial sac is filled by ascites.

Emergency herniorrhaphy versus elective procedure in the management of these disorders

Herniorrhaphy in patients with advanced cirrhosis and ascites results in high morbidity and mortality. This fact has led many centers to perform operations only in the presence of complications. In a study by Baron et al.[4], in the 1960s, there was a mortality of 31% in 16 cirrhotic patients undergoing umbilical hernia. Likewise, O'Hara et al.[21] reported morbidity and mortality in 22% and 16%, leading them to suggest that surgical repair should be delayed in simple herniations. Other studies have demonstrated the same way, high morbidity and mortality in post-operative patients with decompensated cirrhosis[6,18].

The refractory ascites add an important risk factor for complications and recurrence[16,27]. Belghiti et al.[6] reported that the presence of ascites is the main predisposing factor for the onset of these diseases and the main difficulty in therapeutic management in the surgical treatment. The authors describe the need of the existence of no residual ascites for surgical procedures. With persistence, repair isolated would not be indicated due 5% of mortality and 30% of morbidity, both very high. In the same review, Belghiti et al.[6] also reported that mortality in the post-operative period is much higher in patients with complicated hernias, for example, strangled.

On the other hand, several studies of abdominal wall hernias suggest that patients with decompensated cirrhosis may have their hernias repaired with elective surgery without increasing the surgical risk or recurrence[19]. Table 1 illustrates some of these findings.

TABLE 1 – Hernia repair in elective and urgency situations

	Urgency	Elective
Marsman et al, 2007[19]	77%	18%
Mansour et al, 1997[18]	50%	18%
Garrison et al, 1984[12]	57%	10%
Aranha et al, 1987[3]	86%	41%
Doberneck et al, 1983[10]	45%	11%

Likewise, Carbonell et al.[8] evaluated more than 32.000 patients undergoing herniorrhaphy in the US, with 1197 cirrhotics. They observed in cirrhotic patients a higher incidence of complications requiring emergency surgery and mortality 12.5 times higher when compared to non-cirrhotic. However, patients who underwent elective operation showed similar mortality between non-cirrhotic and cirrhotic patients (0.6% vs 0.1%, respectively). Retrospective analysis can often contain biases, as in the paper

where patients undergoing elective surgery were selected.

Other studies have also shown that the risk related to the surgery is not prohibitive[23,24], even in patients with advanced liver disease and Child C refractory ascites. Park et al.[24] published a study of 53 cirrhotic patients undergoing abdominal wall hernia (17 Child A, 27 Child B and nine Child C) of which 17 had refractory ascites. There was one death from sepsis after hernia incarceration in patient Child C. With mean follow-up of 24 months, there was only one recurrence in a patient Child B. In late follow-up, 100% of patients reported improvement in quality of life after surgery.

Another important issue to consider is that the majority of cirrhotic patients are on waiting lists for liver transplantation. Those with low MELD scores are likely to have long waiting, thus with higher chances of hernia complications. On the other hand, if the patient is supposed to be transplanted in the short time, elective surgical repair may be delayed after the transplant procedure or made concurrently with it in selected cases. Lawson et al.[17] conducted a retrospective study of 40 patients who underwent inguinal hernia repair before, during or after liver transplantation. They found less morbidity and fewer recurrences in patients operated after transplantation. Certainly the risk inherent in advanced cirrhosis is much greater than the risk after liver transplantation, even in the presence of immunosuppressive therapy.

However, available data still present in the literature are controversial. From this it is necessary to make further randomized prospective studies dedicated to get answers to this paradigm.

Quality of Life

Quality of life is another important variable impaired in cirrhosis. Only one third of individuals with inguinal hernia are asymptomatic or have mild symptoms such as mild pain without prejudice to the work or daily activities[14]. In contrast, patients with decompensated ascites large hernias may be painful, depending on its location, impairing deambulation and forcing retention in bed[2].

Patti et al. [25], in a study of quality of life measured by SF-36 questionnaire in patients with cirrhosis showed, in all domains, significant lower scores in comparison with healthy Italian population. The major differences were observed depending on the physical limitations, general health and emotional function of limitation, since the body pain was minimally affected. Moreover, the severity of disease assessed by Child's score was most strongly associated with poor perception of health status.

According to Patti et al.[25] hernioplasty is itself capable of improving quality of life. Elective operations performed by the O'Dwyer group were compared with policy "wait and see" in asymptomatic patients with hernia. The authors found that after six months, significant improvement in most dimensions of the questionnaire in the operation group, while after 12 months, although the tendency remained the same, the differences were only significant for change in general health .

Lawson et al.[17], in a randomized clinical trial of patients undergoing repair of inguinal hernia, found significant improvement in quality of life, also assessed by the SF-36 scores between the pre-operative and post-operative. In particular, this improvement was much greater for the variables of pain and physical function. The patients in this study underwent elective herniorrhaphy, after extensive clinical evaluation and intensive management of ascites. The short recovery time and improvement of objective and subjective states of health, gave better quality of life at six months follow-up. This approach has shown overall improvement in each domain of the SF-36, more relevant for pain, physical performance, "social functioning" and general health. The overall analysis of the MCS and PCS (Physical and Mental Component Summary, respectively) showed that both parameters improved more markedly in patients with ascites and advanced liver disease, ie, those in which the negative effects of symptomatic inguinal hernias are more likely to occur.

Experience of the Liver Transplantation Service, Hospital das Clinicas, Faculty of Medicine, University of São Paulo, SP, Brazil.

At the time when the allocation criterion of patients was chronological in waiting list, the hernia repair in cirrhotic patients was restricted only to cases of emergency or in which ascites, if present, was completely controlled. With the adoption of the MELD score for allocation from 2006 - which takes into account the severity of the patient - this service was encouraged to perform elective procedures, among which herniorrhaphy. In the presence of a worse state due to the surgical procedure, the patient is automatically reallocated on the transplant waiting list.

Retrospective evaluation of 50 patients undergoing herniorrhaphy (26 elective and 24 urgent, 44 men and six women, mean age 52.2 ± 12.4 years, average MELD of 14.4 ± 5.9, cause of cirrhosis due to alcohol) was found that those with MELD scores above 20 had higher morbidity (66.7% vs 26.8% - p = 0.034). It was observed also greater morbidity in emergency procedures (50% vs 16.7% - p = 0.011) and higher morbidity in patients with Child B (6/23) and C (8/12) when compared with Child A (2/15) (p = 0.009). There were five deaths related to surgery, four in Child C and one Child B. Classifying the patients based on the criterion of Child in relationship to the location and nature of their hernias, can be seen in Table 2.

TABLE 2 – Clinical grade, location and type of the hernias

Child	Umbilical	Inguinal	Mixed	Incisional
A	8 (57%)	4 (29%)	1 (7%)	1 (7%)
B	13 (50%)	5 (19%)	6 (23%)	2 (8%)
C	3 (75%)	-	1 (25%)	-
TOTAL	**24 (55%)**	**9 (20%)**	**8 (18%)**	**3 (7%)**

Currently, a prospective randomized study is underway in order to elucidate whether the elective procedure is better than the clinical observation alone in cirrhotic patient. A total of 96 cirrhotic patients are been followed-up with hernia repair by the liver transplantation group of the hospital. They were divided according to Child classification and randomized between elective operation and conservative treatment, and operated only in complications.

CONCLUSION

In this scenario, there is tendency to change the management of abdominal wall hernias in the cirrhotic in favor of elective operation. The allocation by MELD criteria has encouraged this policy on the waiting list for transplantation. But definitive answers await studies with larger samples, prospective and randomized.

REFERENCES

1. Ammar SA. Management of complicated umbilical hernias in cirrhotic patients using permanent mesh: randomized clinical trial. Hernia. Feb;14(1):35-8.
2. Andraus WP, B; Pinheiro, R S N; Bitencourt, F S; Farias, C N F; D'Albuquerque, L A C. Quality of life in patients with abdominal hernia and cirrhosis. Brazilian Archives of Digestive Surgery. [Original article]. 2009;22(4):222-5.
3. Aranha GV, Greenlee HB. Intra-abdominal surgery in patients with advanced cirrhosis. Arch Surg. 1986 Mar;121(3):275-7.
4. Baron HC. Umbilical hernia secondary to cirrhosis of the liver. Complications of surgical correction. N Engl J Med. 1960 Oct 27;263:824-8.
5. Befeler AS, Palmer DE, Hoffman M, Longo W, Solomon H, Di Bisceglie AM. The safety of intra-abdominal surgery in patients with cirrhosis: model for end-stage liver disease score is superior to Child-Turcotte-Pugh classification in predicting outcome. Arch Surg. 2005 Jul;140(7):650-4; discussion 5.
6. Belghiti J, Durand F. Abdominal wall hernias in the setting of cirrhosis. Semin Liver Dis. 1997;17(3):219-26.
7. Carbo J, Garcia-Samaniego J, Castellano G, Iniguez A, Solis-Herruzo JA. Liver cirrhosis and mortality by abdominal surgery. A study of risk factors. Rev Esp Enferm Dig. 1998 Feb;90(2):105-12.
8. Carbonell AM, Wolfe LG, DeMaria EJ. Poor outcomes in cirrhosis-associated hernia repair: a nationwide cohort study of 32,033 patients. Hernia. 2005 Dec;9(4):353-7.
9. del Olmo JA, Flor-Lorente B, Flor-Civera B, Rodriguez F, Serra MA, Escudero A, et al. Risk factors for nonhepatic surgery in patients with cirrhosis. World J Surg. 2003 Jun;27(6):647-52.
10. Doberneck RC, Sterling WA, Jr., Allison DC. Morbidity and mortality after operation in nonbleeding cirrhotic patients. Am J Surg. 1983 Sep;146(3):306-9.
11. Filsoufi F, Salzberg SP, Rahmanian PB, Schiano TD, Elsiesy H, Squire A, et al. Early and late outcome of cardiac surgery in patients with liver cirrhosis. Liver Transpl. 2007 Jul;13(7):990-5.
12. Garrison RN, Cryer HM, Howard DA, Polk HC, Jr. Clarification of risk factors for abdominal operations in patients with hepatic cirrhosis. Ann Surg. 1984 Jun;199(6):648-55.
13. Gray SH, Vick CC, Graham LA, Finan KR, Neumayer LA, Hawn MT. Umbilical herniorrhapy in cirrhosis: improved outcomes with elective repair. J Gastrointest Surg. 2008 Apr;12(4):675-81.
14. Hair A, Duffy K, McLean J, Taylor S, Smith H, Walker A, et al. Groin hernia repair in Scotland. Br J Surg. 2000 Dec;87(12):1722-6.
15. Hoteit MA, Ghazale AH, Bain AJ, Rosenberg ES, Easley KA, Anania FA, et al. Model for end-stage liver disease score versus Child score in predicting the outcome of surgical procedures in patients with cirrhosis. World J Gastroenterol. 2008 Mar 21;14(11):1774-80.
16. Hurst RD, Butler BN, Soybel DI, Wright HK. Management of groin hernias in patients with ascites. Ann Surg. 1992 Dec;216(6):696-700.
17. Lawson EH, Benjamin E, Busuttil RW, Hiatt JR. Groin herniorrhaphy in patients with cirrhosis and after liver transplantation. Am Surg. 2009 Oct;75(10):962-5.
18. Mansour A, Watson W, Shayani V, Pickleman J. Abdominal operations in patients with cirrhosis: still a major surgical challenge. Surgery. 1997 Oct;122(4):730-5; discussion 5-6.
19. Marsman HA, Heisterkamp J, Halm JA, Tilanus HW, Metselaar HJ, Kazemier G. Management in patients with liver cirrhosis and an umbilical hernia. Surgery. 2007 Sep;142(3):372-5.
20. McKay A, Dixon E, Bathe O, Sutherland F. Umbilical hernia repair in the presence of cirrhosis and ascites: results of a survey and review of the literature. Hernia. 2009 Oct;13(5):461-8.
21. O'Hara ET, Oliai A, Patek AJ, Jr., Nabseth DC. Management of umbilical hernias associated with hepatic cirrhosis and ascites. Ann Surg. 1975 Jan;181(1):85-7.
22. O'Leary JG, Friedman LS. Predicting surgical risk in patients with cirrhosis: from art to science. Gastroenterology. 2007 Apr;132(4):1609-11.
23. Ozden I, Emre A, Bilge O, Tekant Y, Acarli K, Alper A, et al. Elective repair of abdominal wall hernias in decompensated cirrhosis. Hepatogastroenterology. 1998 Sep-Oct;45(23):1516-8.
24. Park JK, Lee SH, Yoon WJ, Lee JK, Park SC, Park BJ, et al. Evaluation of hernia repair operation in Child-Turcotte-Pugh class C cirrhosis and refractory ascites. J Gastroenterol Hepatol. 2007 Mar;22(3):377-82.
25. Patti R, Almasio PL, Buscemi S, Fama F, Craxi A, Di Vita G. Inguinal hernioplasty improves the quality of life in patients with cirrhosis. Am J Surg. 2008 Sep;196(3):373-8.
26. Runyon BA, Juler GL. Natural history of repaired umbilical hernias in patients with and without ascites. Am J Gastroenterol. 1985 Jan;80(1):38-9.
27. Sherlock S DJ. Diseases of the liver and biliary system. In: Publishing BBS, editor. Diseases of the liver and biliary system. 11th ed. ed: Boston: Blackewell Science Publishing; 2002.
28. Teh SH, Nagorney DM, Stevens SR, Offord KP, Therneau TM, Plevak DJ, et al. Risk factors for mortality after surgery in patients with cirrhosis. Gastroenterology. 2007 Apr;132(4):1261-9.