Original Article

Factors influencing morbidity and mortality in elderly population undergoing inguinal hernia surgery

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Abstract

Objective: To study various factors influencing outcome of open hernia repair in elderly population.

Methods: This is a retrospective descriptive study from January 2004 to December 2008 including all patients (n=212) of 60 years and above operated for inguinal hernias either electively or in emergency during this period. One of the co-authors was assigned the duty to collect the record files of all patients over 60 years age operated for inguinal hernia in the department of surgery LUMHS as well as in private hospitals in Hyderabad. The records of all patients were reviewed and data retrieved on a proforma mentioning variables to investigate the common co-morbidities and their influence on the overall results of surgical intervention in geriatric patients. SPSS version 12 was used for statistical analysis of the data.

Results: The mean age of the patients in this series was 69.82 ± 7.8 years of whom 208(98%) were males and 4 (2%) females. In 190 (89.61%) patients the hernias were unilateral while 12 (5.7%) cases had bilateral inguinal hernias and 10 (4.7%) patients presented with recurrent hernias. In 159 (75%) patients the hernia was simple while 53 (25%) patients presented with one or the other complication such as obstruction or strangulation. Elective surgery was performed in 161(75.9%) patients while 51 (24.1 %) patients were operated in emergency. Co-morbidities were present in 79 (37.26%) patients. Out of the total study population, 7(3.30%) patients died of which 6 were operated in emergency and had co-morbidities. All of them had gangrene of bowel for which resection and anastomosis was done. One patient died of acute MI on 5th post-operative day.

Conclusion: Emergency hernia surgery carries a high mortality in elderly patients. Co-existing medical problems make surgery still challenging in the geriatric population. An early elective hernia repair is highly recommended (JPMA 60:45; 2010).

Introduction

Advancing age is associated with a decline of functional capacity of various organ systems. This, however, is not attributed to any pathological process as different organs have different rate of getting affected by this ageing process.[1] There is a global increase in the geriatric patients undergoing various surgical procedures. This is attributed to an overall increased life expectancy in the developed world due to improved diagnostic tools.[2] However, reluctance for surgery due to economical reasons coupled with a general fear for surgery is the main reason for an increasing number of elderly surgical patients in Pakistan and other developing countries. There is an alarming incidence of peri-operative deaths among geriatric patients in the developing world.[3] The surgeons all over the world had been pushed to develop predictive criteria for the assessment of pre-operative factors affecting morbidity and mortality in elderly surgical patients. No such predictive criteria, however, has been constituted.[4] Co-morbidities are frequent companions of elderly patients requiring surgery.[5] Reluctance for operation leads to complications at some stage and it has been pointed out in many studies that the mortality and morbidity increases many folds if such hernias are operated in emergency in elderly patients.[6,7] People present with giant hernias and only seek medical advice when they develop some life threatening complication. Co-morbidities coupled with complications and emergency surgery increases the life risk many folds. The present study evaluates our experience of five years in the management of inguinal hernias in elderly patients of 60 years and above with emphasis on post-operative morbidity and mortality.

Methods

A retrospective analysis of elderly patients operated for inguinal hernia was done by way of retrieving relevant information from the record files of the patients from January 2004 to December 2008. A co-author of this study was given this task to collect the files and study them thoroughly to retrieve the relevant data. A total of 212 inguinal hernias were repaired in elderly patients of 60 years and above in a teaching hospital as well as in different private hospitals in Hyderabad by the same surgical team. Patients were admitted through casualty or out patient department. Co-morbidities were taken care of in elective as well as in emergency situations. The patients were operated after thorough clinical and laboratory evaluation. Patients who presented with complicated hernias

were operated in emergency after pre-requisite investigations and resuscitation. The anaesthesia employed was determined by anaesthetist after assessment of the patients. The variables studied included co-morbidities and their influence on outcome, operative and post-operative complications, operative time, post operative stay and outcome of the surgery in terms of morbidity and mortality. The results were analyzed on SPSS version 12.

Results

Two hundred and twelve operations of inguinal hernias in elderly patients of 60 years and above were performed during 5 years and the outcome evaluated. The mean age of the patients in this series is 69.82 ± 7.8 years and a range of 31 (91-60) years of whom 208 (98%) were males and 4 (2%) females. In 159 (75%) patients the hernia was simple while 53 (25%) patients presented with one or the other complication as shown in Table-1. Elective surgery was performed in 161(75.9%) patients while 51 (24.1 %) patients were operated in emergency. Seventy nine (37.26%) patients had one or the other co-morbidity with COPD (42, 19.2%) ranking top in the list as shown in Table-2. In 161 (75.9%) patients, mesh was applied while in 51 (24.1%) patients the repair was done by suture. Incidence of post operative complications was significantly high in emergency hernia repairs compared to elective surgery (P<0.001) as compared in Table-3. The total duration of operation in emergency and elective surgery was not statistically significant and majority of operations were completed in 60-90 minutes. Post operative complications were most frequently seen in patients with associated co-morbidities such as diabetes mellitus (P<0.001). Out of the total study population, 6 (2.83%) patients died of septicaemia in which emergency operation was performed for obstructed or strangulated hernias. One patient died of acute myocardial infarction on 5th post operative day for which no obvious reason was found. It was diagnosed as a massive inferior wall infarction on ECG after the patient complained of severe chest pain and sweating. Of these, all seven patients who died had one or the other co-morbidity. The average length of hospital stay was 7 days which rises up to 2 weeks in patients who suffered one or the other complication.

Table-1: Clinical Presentation.

Presentation	Frequency	Percentage (%)
Simple	159	75
Obstructed	33	15.1
Strangulated	7	3.2
Incarcerated	13	6.1
Total	212	100

Table-2: Co-Morbidities and their frequencies.

Co-Morbidity	Frequency	Percentage
Ischemic heart disease	05	2.4
Hypertension	11	5.2
Diabetes Mellitus	21	9.9
COPD	42	19.8

Discussion

Surgery for elderly people has remained a challenge for the surgeons until recently because of many reasons and beliefs. Denying surgery to elderly subjects may let some treatable diseases to progress to a stage where surgical intervention may threaten life. There is, however, a growing consensus that surgery should not be denied on the basis of age only especially when a life saving procedure is to be undertaken. There are an increasing number of elderly people operated for complicated hernias in emergency all over the world. Avoidance of surgery on economical basis as well as general fear for surgery is the main reason that huge and complicated hernias are common in most of the developing countries including Pakistan. The emergency hernia operation in the geriatric population carries a high mortality risk especially when non-viability of gut demands resection and anastomosis of bowel.[7] To evaluate the results of such emergency surgical intervention in elderly patients with complicated hernias seems to be a difficult task.[8] These facts do not make aging an absolute contra-indication for any type of surgery. Elective hernia surgery is thought to have a negligible mortality as reported by many studies.[9,16,17] There is a strong association between the associated co-morbidity, type of surgery (Elective or emergency), clinical type of hernia (Simple or Complicated) and outcome of surgery for hernias in the elderly subjects. This study confirms a low mortality in simple, uncomplicated hernias operated electively compared to delayed, complicated hernias in unfit geriatric

Table-3: Type of repair and post-operative complications.

Type of repair	Post-operative complications							Total
	DVT	Hematoma	Wound infection	Septicemia	Acute MI	Orchitis	No complication	
Elective	02	10	07	02	00	01	139	161
Emergency	05	05	11	07	01	02	20	51
Total	07	15	18	09	01	03	159	212

P<0.001.

population as reported by many similar studies.[18-24] An early elective surgery is recommended in elderly patients to avoid morbidity and mortality.[6,9,23,24] The mortality in this series is found to be high in emergency (6 deaths) versus elective (1 death) operations. This is consistent with the results of other similar studies.[10,25] Co-morbidities in this series are found to have an association with the mortality as 6 patients out of 7 who succumbed to death had an associated systemic disease. This is consistent with the observations in similar studies indicating that co-morbidities increase the likelihood of complications and mortality.[10,28,29] In our results there is an increased incidence of various post-operative complications in patients who had concomitant systemic disease. This is also in line with the results of many similar studies.[7,25] The post-operative complications are more frequently seen in emergency hernia repair compared to elective repair. In addition to age and co-morbidities, other factors responsible are experience of surgeon, operating conditions, and sterilization of the instruments. Furthermore, as not much time is spent on the workup of the patients in emergency situations, to avoid any further delay in surgery, could be an additional factor leading to more post-operative problems in emergency hernia repair. Delay in the referral, hours following obstruction or strangulation and general state of the patient are additional factors influencing morbidity and mortality in elderly patients undergoing hernia surgery.

Conclusion

Elderly patients with associated medical problems have a significantly high morbidity and mortality especially if operated in emergency situation. An early elective repair is strongly recommended to improve the outcome of surgery.

References

1. Masuo K, Kumagai K, TanakaT, Yamagata K, Schimizu K, Nishida. Physiological age as an outcome predictor for abdominal surgery in the elderly patients. Surg - Today 1998; 28: 997-1000.
2. Mclyntyre R, Reinbach D, Cuscheri RJ. Emergency abdominal surgery in the elderly. JR Coll Surg Edinb 1997; 42: 1738.
3. Hardin RE, Zenilman ME. Surgical considerations in the elderly, in Schwartz 's Principal of Surgery. 8th ed. New York, Chicago: Mc Graw Hill Medical Publishing Division 2005; 1835-49.
4. Donati A, Ruzzi M, Adrario E, et al. A new and feasible model for predicting operative risk. Br J Anasth 2004; 93: 393-9.
5. Saleem MI, Al-Hashmi AM, Al-Sakaini MS, Hafez E, Obeid M, Refeidi A. Efficacy of local anaesthesia and simplicity of Mesh plug technique in open inguinal hernia repair in patients above 60 years of age. Kuwait Med J 2002; 34: 213-6.
6. Mansuri M, Ekjam S, Hudairi A, Sannusi O, Ismael S, Fakheri A. Emergency abdominal surgery in Libyan elderly patients. Sci Med J ESCME; 17: 57-64.
7. Schumpelic V, Treunter KH, Arlt G. Inguinal hernia repair in adults. Lancet 1994; 344: 375-8.
8. Linn BS, Linn MW, Wallen N. Evaluation of results of surgical procedures in the elderly. Ann Surg 1982; 195: 90-6.
9. Gianetta E, Cian FD, Cuneo S, Friedman D, Vitale B, Marinari G, Baschieri G, Camerini G. Hernia repair in elderly patients. BJS 2005; 84: 983-5.
10. Gunnarsson U, Degerman M, Davidsson A, Heuman R. Is elective hernia repair worthwhile in old patients? B J Surg 2003; 165: 326-32.
11. Walsh T.H. Audit of outcome of major surgery in the elderly. B J Surg 1996; 83: 92-7.
12. Lewis DC, Moran CG, Vellacott KD. Inguinal hernia repair in the elderly. J R Coll Surg Edinb 1989; 34: 101-3.
13. Mcgugan E, Burton H, Nixon SJ, Thompson AM. Deaths following hernia surgery: room for improvement. J R Coll Surg Edinb 2000; 45: 183-6.
14. Juan J, Arenal MD, Michael Bengochea -Beeby MD. Mortality associated with emergency abdominal surgery in the elderly. Can J Surg 2003; 46: 111-6.
15. Frazzetta, M, Di Gesu G. Inguinal hernia surgery performed on elderly cardiopath patients. ACTA BIOMED 2005; 76: 42-5.
16. Bahadir K, Arife Polat D, Munevver M, Hakan K, Mahir OM, Faruk C. Emergency hernia repairs in elderly patients. Am J Surg 2001; 182: 455-9.
17. Allen MPI, Zager M, Goldman M. Elective repair of groin hernias in the elderly. BJS 2005; 74: 987.
18. Rosenthal RA, Anderson DK. Physiologic considerations in the elderly surgical patients in modern surgical care. Miller TA (2nd Ed).St Louis; Quality medical publishing Inc 1998; 1362-84.
19. Seagroatt V, Goldacre M. Measures of early post-operative mortality: beyond hospital fatality rales. Br Med J 1994; 309: 361-6.
20. Gaschieri G, Cuneo S, Vitale B, Simonelli A, Steinweg M, Gianetta E. 6 years of experience in inguinal and femoral hernioplasty in patients over 65 years of age. G Chir 1997; 18: 815-9.
21. Alvarez Perez JA, Baldonedo RF, Bear IG, Solis JA, Alvrez P, Jorge JI. Emergency hernia repairs in the elderly patients. Int Surg 2003; 88: 231-7.
22. Derici H, Bozado A, Nazli O, Tansug T, Kamer E. Factors affecting morbidity and mortality in incarcerated abdominal wall hernias. Hernia 2007; 13.
23. Alimoglu O, Kaya B,Okan I, Dasiran F, Guzey D, Bas G, Sahin M. Femoral Hernia: A review of 83 cases. Hernia 2006; 10: 70-3.
24. Ozturk E, Yilmazlar T. Factors affecting the mortality risk in elderly patients undergoing surgery. ANZ J Surg 2007; 77: 156-9.
25. Seymour DG, Vaz FG. A prospective study of elderly general surgical patients. II. Post operative complications. Age and Ageing 1998; 18: 316-26.