# CHANGING TRENDS IN ABDOMINAL TRAUMA IN A TEACHING HOSPITAL OF LAHORE

Pages with reference to book, From 71 To 72

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## ABSTRACT

A comparison between patients of abdominal trauma admitted 10 years ago (1979-1981) and those admitted in the recent past (1989-1991) showed important variations in the frequency, aetiology, severity, morbidity and mortality. There was marked increase in frequency over this period. Ten years ago stab injuries were the most frequent cause of abdominal trauma, today firearm injuries rank first. The severity of injuries judged by involvement of number of organ systems and associated injuries has also intensified. Morbidity and mortality has almost doubled over this period. Today's emergency surgeon needs to be better trained and competent to deal with the severe injuries particularly of deep seated intra-abdominal organs if mortality and prolonged morbidity is to be decreased (JPMA 43: 71, 1993).


## INTRODUCTION

Trauma is on an increase throughout the world and is the most frequent cause of death in people below 40[1]. With an increase in the number of road traffic accidents, state of lawlessness in the society and easy availability of firearms; an appreciable change in the frequency, aetiology, severity, morbidity and mortality has been observed during the past decade[2]. In this article a comparison has been carried out in patients of abdominal trauma admitted 10 years ago (1979-1981) and those admitted in the recent past (1989-1991) in Mayo Hospital, Lahore which is the major teaching hospital of the city. Some of the interesting observations drawn from the study are highlighted.

## PATIENTS AND METHODS

Over a period of three years (between 1979 and 1981, period A), 248 patients (206 males, 42 females) were admitted with abdominal trauma requiring laparotomy. After 10 years (between 1989 and 1991, period B), 327 patients (267 males and 60 females) were admitted during three years for the same reason. Their year-wise distribution is given in Table I.

**TABLE I. Yearwise distribution.**

| Year | Male | Female | Total | Year | Male | Female | Total |
|---|---|---|---|---|---|---|---|
| 1979 | 67 | 12 | 79 | 1989 | 82 | 22 | 104 |
| 1980 | 67 | 16 | 83 | 1990 | 91 | 18 | 109 |
| 1981 | 72 | 14 | 86 | 1991 | 94 | 20 | 114 |
| Total | 206 | 42 | 248 | | 267 | 60 | 327 |
| Average | 69 | 14 | 83 | | 89 | 20 | 109 |

On an average 83 patients underwent laparotomy annually during the first period of study and 109 patients during the second period of study; for reasons of trauma.

**TABLE II. Age and sex distribution.**

| Age in years | 1979-1981 | | | 1989-1991 | | |
|---|---|---|---|---|---|---|
| | Male | Female | Total | Male | Female | Total |
| 0-10 | 4 | 2 | 6 | - | - | - |
| 11-20 | 30 | 10 | 40 | 66 | 21 | 87 |
| 21-30 | 59 | 14 | 73 | 79 | 23 | 102 |
| 31-40 | 42 | 7 | 49 | 65 | 5 | 70 |
| 41-50 | 38 | 4 | 42 | 27 | 7 | 34 |
| 51-60 | 19 | 3 | 22 | 16 | 3 | 19 |
| 61-70 | 10 | 2 | 12 | 10 | 1 | 11 |
| 71-80 | 4 | - | 4 | 3 | - | 3 |
| 81-90 | - | - | - | 1 | - | 1 |
| Total | 206 | 42 | 248 | 267 | 60 | 327 |

Table II shows age and sex distribution of patients of both series. During the first period of study patients of all ages were included while during the second period of study children (below 12 years) were not included because they were admitted to paediatric surgical unit directly. During the first three years, 158 patients (64%) were admitted due to stab injuries, 52 patients (21%) due to firearm injuries and 38 patients (15%) due to blunt abdominal trauma. Over the second period of study, 128 patients (39%) were admitted due to stab injuries, 157 patients (48%) due to firearm injuries and 42 patients (13%) due to blunt abdominal trauma. During the first period of study 149 patients (60%) belonged to Lahore while 99 patients (40%) were referred from other cities. During the second period of study 268 patients (82%) were from Lahore while 59 patients (18%) were referred from other cities. Abdominal trauma alone or in association with involvement of other organs is shown in Table III.

**TABLE III. Frequency of associated injuries.**

| Organs involved | 1979-1981 | | 1989-1991 | |
|---|---|---|---|---|
| | Nos. | % | Nos. | % |
| A. Abdomen alone | 139 | 56 | 132 | 40 |
| B. Associated injuries | 109 | 44 | 195 | 60 |
| 1. Chest | 76 | 31 | 132 | 40 |
| 2. Lower limb | 51 | 21 | 64 | 20 |
| 3. Upper limb | 48 | 19 | 57 | 17 |
| 4. Head and neck | 26 | 10 | 32 | 10 |
| 5. Vertebral column | 6 | 2 | 14 | 4 |

In the recent years, multiple organ involvement has increased very much. Ileum was the most frequently injured organ in both series followed by jejunum and colon. Liver was the most frequent solid viscus implicated in both series. In the first series 539 organs were implicated in 248 patients representing involvement of 2.4 organs per patient. In the second series 1101 organs were injured amongst 327 patients representing 3.7 organs implication per patient. Duration of hospitalisation varied

between 8 and 48 days (average 15 days) in the first series and 8 to 76 days (average 21 days) in the second series. In the first series twenty seven patients (10.8%) died whereas sixty seven patients (20.5%) died in the second series. Details of the mortality are given in Table IV.

**TABLE IV. Details of mortality.**

| Mortality | 1979-1981 | 1989-1991 |
|---|---|---|
| Preoperative (during resuscitation) | 4 | 10 |
| Per-operative | 8 | 5 |
| Within 6 hours | 9 | 17 |
| Within 48 hours | 3 | 16 |
| After 48 hours | 3 | 19 |
| Total: | 27 (10.8%) | 67 (20.5%) |

## DISCUSSION

During the last ten years annual admission of one surgical unit (representing 1/4th of general surgical emergency load) of Mayo Hospital changed from 83 to 109 patients. This figure does not represent the actual increase for three reasons: (a) in the first series children (below 12 years) were included but in the second series these were not. Inclusion of children would have increased the number by atleast 4%, (b) establishment of better surgical services at district and tehsil headquarter hospitals decreased referrals from periphery from 40% to 18% over a period of ten years. If the 40% referral graph is propagated in the second series, the actual number would increase again, (C) even in the city of Lahore other government hospitals have started admitting medicolegal cases which were refused during the first period of study, thereby decreasing a load on Mayo Hospital. For reasons given above it is difficult to calculate actual increase in the incidence of abdominal trauma though it is reasonable to believe a 40-50% increase in frequency. A drastic change in the aetiology of abdominal trauma was observed over the period of study. The actual number of stab injuries decreased from 64% to 39% but the firearm injuries increased from 21% to 48%. There was little change in the frequency of blunt abdominal trauma (15% vs 13%). The explosive rise in the frequency of firearm injuries is due to easy availability of firearms and a state of lawlessness in the society[3]. Khan has given a high proportion of firearm injuries in his series from Peshawar, an area traditionally known for free availability of firearms[4]. In a recent study television has been incriminated as a cause of increased violence in the society[5]. The severity of abdominal trauma was assessed by the frequency of multiple organ system involvement and extent of intra-abdominal damage. An increase of associated injuries from 44% to 60% and from 2.4 organ involvement to 3.7 per patient denotes increased severity of the trauma. In addition intra-abdonilnal organs like oesophagus, duodenum, pancreas, bile ducts, appendix, kidneys, ureters, big blood vessels, rectum and anal canal which are relatively less frequently injured were proportionately more frequently injured, indicating enhanced severity. This is because firearm injuries are notorious for causing extensive damage not only in the tract of the bullet but also in the near and distant organs due to pressure and blast waves respectively[6]. This is in contrast to stab injuries which cause damage to the organs in the path of the weapon only[7]. A prolonged duration of hospitalisation (from 15 to 21 days) denotes an increase in morbidity due to abdominal trauma over this period. The mortality of abdominal trauma almost doubled over a period of ten years, i.e., from 10.8% to 20.5%. A detailed look at the

mortality figures shows that in the first series 8 patients had table deaths and 9 patients died within 6 hours after surgery (63% perioperative mortality). In the second series 5 patients had table death and 17 died within 6 hours (39% perioperative mortality). This shows that perioperative care was better in the second series. It is partly due to better equipment and drugs and partly due to anaesthetic and surgical expertise available.

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