

# INCISIONAL HERNIAS : WHY DO THEY OCCUR?

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**ABSTRACT :** Over a period of five years 110 cases of incisional hernia were evaluated at teaching hospitals of Dow Medical College and Peoples Medical College, Nawabshah to ascertain their causes. It was found that these hernias were seen more frequently after emergency surgery (87.27%) performed by resident surgeons (89.09%). About 70% patients had previous history of gynaecological and obstetric operations. Midline incision is more prone to herniation than paramedian and transverse incisions as evidenced by 73.64% patients in this series. Other important causative factors are wound infection (69.09%), chest infection (30.91%), abdominal distension (14.55%) and constipation.

**KEY WORDS :** Incisional Hernia, Infection, Aetiology.

## INTRODUCTION

Although the incidence of burst abdomen has been reduced to less than 1% by the use of mass closure techniques<sup>1,2</sup>, incisional hernia still remain an important problem for surgeons. Any scar of the abdominal wall has a definite though small risk of hernia formation<sup>3</sup>. This is because of the fact that the tensile strength of the scar is only 50.90% of the original tissue<sup>4</sup>. The strength of the abdominal wall lies in the collagenous aponeurotic layer, the linea alba and the rectus sheath. Healing of these layers is slow although the major portion of their strength is regained by 120 days after incision<sup>5</sup>. On theoretical basis, the majority of incisional hernias would be expected to occur within one year of operation, since by then the collagen scar would have achieved full maturity and strength<sup>6</sup>.

As incisional hernia is the third most frequently diagnosed hernia after inguinal and paraumbilical varieties<sup>7</sup>, hence meticulous closure of the abdomen, preferably with non-absorbable suture material is mandatory. Post-operative complications like wound infection, distension, etc. should be avoided to reduce the incidence of hernia. The basic aim of this study was to look for aetiological factors responsible for incisional hernia development.

## PATIENTS & METHODS

A retrospective study was conducted at Civil Hospital, Karachi and Peoples Medical College Hospital, Nawabshah on all patients who presented with incisional hernia from 1988 to 1992.

Information was collected about age, weight, built, postoperative complications and the bacteriological findings of wound exudates, throat swabs and sputum. Previous records and discharge cards were reviewed and information collected from concerned operation theatres regarding use of suture material, sterilization and the status of surgeon who performed the surgery.

## RESULTS

One hundred and ten patients were reviewed in this five year study. Of these 92 (83.64%) reported herniation within one year. There were 84 (76.36%) females and 26 (23.64%) males. Their ages ranged from 17 to 78 years with maximum incidence between 30-50 years (Fig. 1).

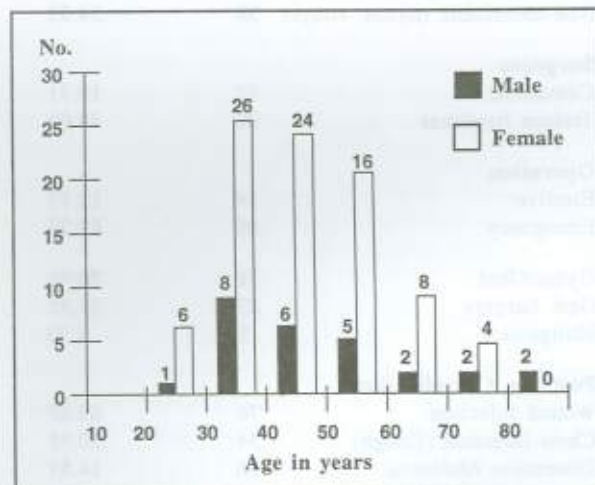


Fig. 1. Age Incidence

Most common symptoms were dragging pain in the abdomen and low back ache. Only two patients presented in emergency with intestinal obstruction. Five (4.55%) patients were known diabetic. All patients have a palpable defect greater than 1cm in diameter. The herniae developed from midline incision in 73.64%, paramedian in 16.36% and transverse incision in 10% cases. Only 24.55% patients underwent general surgical procedures. Five (4.55%) cases were operated for malignancy which included carcinoma of colon, gall bladder and cervix (Table 1).

## DISCUSSION

Incisional hernia is the only ventral hernia that is truly iatrogenic. Its reported incidence varies from 1-11% of laparotomies<sup>8</sup>. Advances in abdominal surgery in the 19th century had been followed by development of operations to manage incisional hernias which occ-

**Table 1. Relation of Incisional Hernia to possible causal factors**

Factor	Patients	Percentage
<b>Sex</b>		
Male	26	23.64
Female	84	76.36
<b>Incision</b>		
Midline	81	73.64
Paramedian	18	16.36
Transverse	11	10.00
<b>Suture</b>		
Absorbable (catgut)	72	65.45
Non-absorbable (nylon, vicryl)	38	34.55
<b>Surgeons</b>		
Consultant	12	10.91
Trainee Registrar	98	89.09
<b>Operation</b>		
Elective	14	12.73
Emergency	96	87.27
Gynae/Obst.	78	70.90
Gen. Surgery	27	24.55
Malignancy	5	4.55
<b>Post Op. Complication*</b>		
Wound Infection	76	69.09
Chest Infection (Cough)	34	30.91
Distension Abdomen	16	14.55

\*Some patients had more than one complication.

ured as a complication. Gerdy is credited for having repaired the first incisional hernia in 1836<sup>9</sup>. Maydl reported incisional hernia in 1886, Juddin in 1912, and Gibson in 1920.

Incisional hernia should be prevented rather than treated. The incidence of incisional hernia can be reduced by using perfect technique for closure of abdominal wounds with non-absorbable or late absorbable suture materials. Aseptic techniques and proper sterilization is important to decrease the frequency of postoperative wound infection which dramatically increases the chances of incisional hernia formation<sup>2,10,11</sup>. Our study also shows that 69.09% patients had wound infection while 87.27% were operated in emergency theatre by trainee registrars (89.09%).

The development of incisional hernia is also related to the type of the incision employed. Compared with the midline and paramedian incision, transverse incision has the lowest rate of subsequent incisional hernia development<sup>10</sup>. In this series 73.64% herniae occurred in vertical incisions. It has been postulated that vertical incisions are subject to more stresses and strains than transverse or oblique incisions. This makes them mechanically less suitable to withstand distracting forces<sup>12</sup>.

In this series incisional herniae were mostly seen after obstetric and gynaecological surgery (70.90%). Majority of cases underwent Cesarean section (98%) in emergency by resident medical officers who used absorbable suture material in 65.45% cases for abdominal closure.

Technical errors can be avoided by using non-absorbable sutures making surgical knots, taking deep tissue bites i.e. 1cm or more from the wound margin and using small stitch intervals i.e. less than 1cm apart<sup>13</sup>. The suture length to wound length ratio should be 4:1 or more<sup>14</sup>. By the application of these principles Jenkins<sup>15</sup> reduced the incidence of wound dehiscence to 0.07% and that of incisional hernia to < 2%.

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