

A CLINICAL AND SURGICAL STUDY OF INCISIONAL HERNIAS

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ABSTRACT

BACKGROUND

Incisions through the abdominal wall are based on anatomical principles. The intra-abdominal pressure is considerable and the surgeon aims at leaving the abdominal wall as strong as possible after operation, otherwise there exists a very real fear that portions of the abdominal contents may leave the abdominal cavity through the weak area, which are caused by a badly placed incision resulting in a condition known as scar incisional or ventral hernia. This study is intended to understand the clinical and surgical factors that may have been a contributory factor for the formation of the incisional hernias and also the treatment modality that is commonly employed to correct the discontinuity. This study is intended to help the practicing surgeons and also the young budding surgeons to understand the disease in detail.

MATERIALS AND METHODS

This study was done in the Department of General Surgery, RIMS Medical College, Ongole. Sixty patients who returned after undergoing the surgical procedures were included in the study. The study included 15 males and 45 females. The study was done from January 2014 to December 2016.

RESULTS

In the present study, the mean age of the total population was found to be 48.23 years. The female counterpart was found to be three times higher than that when compared to the males. The symptoms that tend to increase the intra-abdominal pressure tends to increase the mishap. The condition is more common in the early stages post-surgery.

CONCLUSION

In this study, the demographic pattern and the most common clinical and surgical factors that is thought to be directly involved with the condition has been reported.

KEYWORDS

Clinical, Surgical, Incision, Hernia, Median, Paramedian.

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BACKGROUND

Incisional hernia can be defined as protruding out of abdominal organs from the normal boundaries of abdominal cavity, which is due to a direct result of previous surgical or accidental abdominal incisions.¹

Incisions through the abdominal wall are based on anatomical principles. The intra-abdominal pressure is considerable and the surgeon aims at leaving the abdominal wall as strong as possible after operation, otherwise there exists a very real fear that portions of the abdominal contents may leave the abdominal cavity through the weak area, which are caused by a badly placed incision resulting in a condition known as scar incisional or ventral hernia.

Specific incisions for particular purposes have been included in the consideration of individual organs. More flexible incisions maybe required where wider or multipurpose exposure is desired.

Incisions of the abdomen include median and paramedian. The direction and the orientation of the longer lines and its thorough knowledge is the necessity of the hour. Even the directions of the muscle fibres and its orientation are necessary, about 50% of the patients come back with incisional hernias after surgeries within the next one to two years.^{2,3} and about five to ten percent of the total of patients who underwent abdominal surgeries land up with this condition ultimately.^{4,5,6,7,8}

Long gone are the days where the knowledge of the surgeon was only needed to make necessary surgeries. In today's world, he is supposed to know the routine antibiotics and the special antibiotics during pre- and post-surgical procedures. The infections in the surgical incisions taken are known to cause serious incisional hernias later in the patient's life because of the serious hampering of the infections in the normal closure of wound. So, the surgeons are supposed to take utmost care when handling the

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procedure. The rise in the intra-abdominal pressure is one more cause.⁹

This study is intended to understand the clinical and surgical factors that may have been a contributory factor for the formation of the incisional hernias and also the treatment modality that is commonly employed to correct the discontinuity. This study is intended to help the practicing surgeons and also the young budding surgeons to understand the disease in detail.

AIMS AND OBJECTIVES

To study and understand the clinical and surgical factors that may have been a contributory factor for the formation of the incisional hernias and also the treatment modality that is commonly employed to correct the discontinuity.

MATERIALS AND METHODS

This study was done in the Department of General Surgery, RIMS Medical College, Ongole.

Sixty patients who returned after undergoing the surgical procedures were included in the study.

The study included 15 males and 45 females.

The study was done from January 2014 to December 2016.

Inclusion Criteria

The patients with a previous history of surgery was only included in the study.

Exclusion Criteria

The patients who were on long time steroid therapy and chemotherapy were not taken for the study.

Detailed history was taken. Proper clinical examination was conducted and relevant investigations were done. Only patients who were confirmed were taken up for the study. After taking proper preanaesthetic evaluation and subjecting the patients to detailed medical evaluation, the surgical treatment was given.

Medical conditions, which are known to increase the intra-abdominal pressure was first given medical line of treatment and then surgery was undertaken.

The proper presurgical antibiotic prophylaxis was given before the time of surgery well in advance.

RESULTS

Total	60
Mean age (total)	48.23 years
Mean age (male)	49.06 years
Mean age (female)	47.4 years

Table 1. Mean Age of the Population

Male	Female	Total
15	45	60

Table 2. Sex Distribution

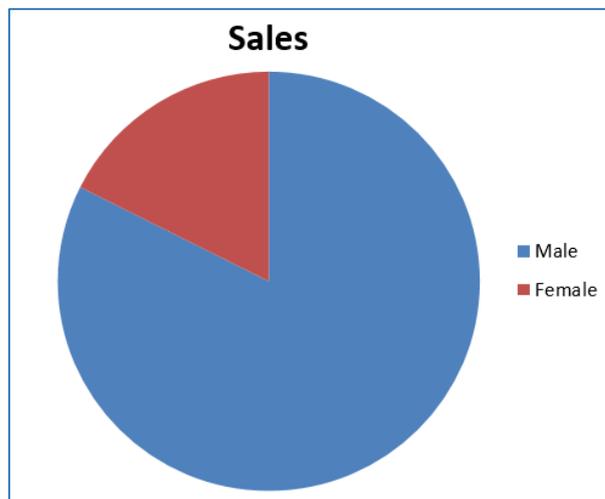


Image 1. Sex Distribution

20-30 Years	30-40 Years	40-50 Years	50-60 Years	60-70 Years	70-80 Years
1	1	6	6	1	Nil

Table 3. Age Distribution (Male)

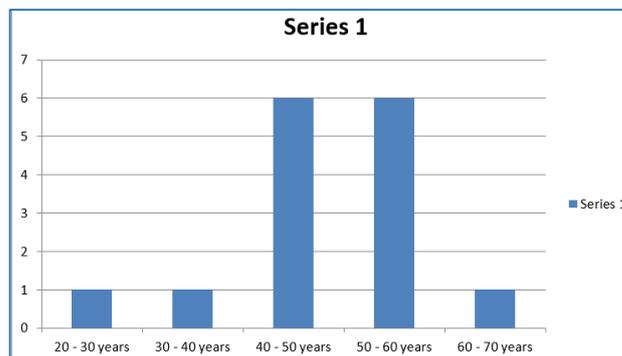


Image 2. Age Distribution (Male)

20-30 Years	30-40 Years	40-50 Years	50-60 Years	60-70 Years	70-80 Years	>80 Years
5	13	8	13	3	2	1

Table 4. Age Distribution (Female)

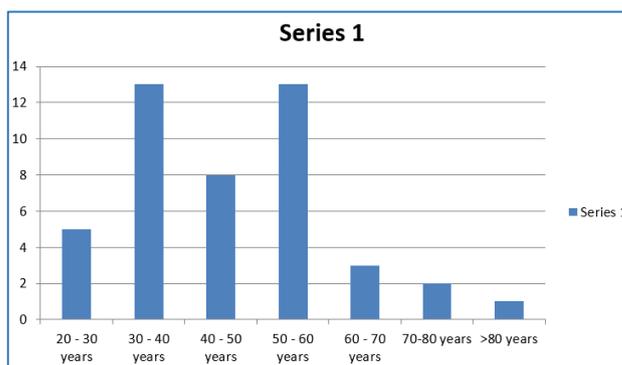


Image 3. Age Distribution (Female)

Presentation	Number
Pain	44
Reducible mass	52
Nonreducible mass	8

Table 5. Common Mode of Presentation

Presentation	Number
Cough more than one month	28
Constipation for more than one month	7
Intra-abdominal mass	1

Table 6. Presence of Factors which Contribute Directly to Increased Intra-Abdominal Pressure

Time	Number
6 months	38
6 months - 12 months	8
>1 year	14

Table 7. Time After the Previous Surgery

Locations	Number
Lower abdominal incision	28
Midline upper abdomen	19
Right paramedian	7
Left paramedian	6

Table 8. Locations Through Which the Hernia Occurred

Locations	Number
3-5 cms.	31
5-10 cms.	27
>10 cms.	2

Table 9. Size of the Hernial Defect

Treatment Modalities- All the one hundred percent of the cases were repaired using mesh repair technique.

Follow Up and Recurrence- None of the cases after one year did not return because of recurrence.

DISCUSSION

In the present study, the mean age of the total population was found to be 48.23 years. The male population was 49.06 years and that of females was found to be 47.4 years. The female counterpart was found to be three times higher than that when compared to the males. The highest patients came from the age group of 40 to 60 years in males and in females, majority of them came from the age group of 30-40 years and 50-60 years.

The females are more commonly involved. This might be because of lax female abdominal walls and also the poor nutrition, which is protein deficient. The first group of females, which included the age group of 30-40 years shows that it might be because of the fact that they belong to the childbearing age group and faulty C-section incisions maybe the culprit. The second group, which includes the age group between 50 to 60 years maybe due to the menopausal symptoms.

The most common presentation is pain and reducible mass per abdomen. The symptoms that tend to increase the intra-abdominal pressure tends to increase the mishap. The condition is more common in the early stages post-surgery.

When our study is compared to that of the other study conducted by Narayanaswamy T,¹⁰ we are in agreement with it.

The incision must give ready access to the part to be investigated and must allow extension if required. The muscles must be split in the direction of their fibres rather than out across. The incisions must not divide nerves. The rectus muscles maybe cut transversely without seriously weakening the abdominal wall as such a cut passes between two adjacent nerves without injuring them. The rectus has a segmental nerve supply, so that there is no risk of a transverse incision cutting off the distal part of the muscle from its nerve supply, as would be the situation if a muscle, which depended on a single nerve were to be divided. Above the umbilicus, the tendinous intersections prevent retraction of the rectus muscle after it has been divided. Drainage tubes should be inserted through separate small incisions as their presence in the main wound may seriously prejudice the strength at the ultimate scar. For the same reason, a colostomy should be made through a separate incision and not through the main wound. Closure of abdominal incisions has been more readily understood since it has been realised that they heal by forming a block of fibrous tissue and that disruption is one mechanical problem often due to ischaemia. Thus, wound closure without tension is necessary for a secure closure.

Midline incisions traverse the abdominal wall in a vertical direction above or below the umbilicus. They are extensively used. The incision divides skin, linea alba, fascia transversalis, extraperitoneal fat and peritoneum. The linea alba above the umbilicus is a dense strong structure 1 cm wide formed by the interlacing fibres of the rectus sheaths. It holds sutures well and it is relatively avascular. The incision maybe extended downwards by cutting around the side of the umbilicus. The side chosen is determined by the falciform ligament, which travels from the umbilicus upwards and to the right. A midline incision maybe extended upwards by cutting or excising the xiphoid process of the sternum and if necessary splitting the sternum. In exposing the bladder, the incision may stop short of the peritoneum, so that the bladder is dealt with through its anterior surface, which is devoid of peritoneum in the region of the space of Retzius (prevesical). The midline lower abdominal incision is occasionally followed by an incisional hernia particularly at the lower end just above the pubis. A major reason for this is that at the time of closure of the incision, the surgeon sutures the external oblique fascia (Gallaudet's fascia) instead of the linea alba. The external oblique fascia lies on the outside of the external oblique aponeurosis to which it is adherent. It is given off over the cord as the external spermatic fascia at the external ring and extends over the pubis into the perineum. It is not as strong as the linea alba and unless the linea alba is sutured, a hernia will develop immediately above the pubis where a supraumbilical midline incision gives insufficient access. It may be combined with a second incision carried laterally at right angles to the first when more exposure is necessary. An oblique upward extension can be used. This will cut the rectus and the muscles of the lateral abdominal wall in the line of the intercostal nerves, which will therefore be preserved and it

will be possible to extend the wound further into an intercostal space.

A paramedian incision is made vertically parallel to the midline and about 2.5 cm away from it to one or other side. It may be made of any length and even if extended from costal margin to pubis, the scar does not greatly weaken the abdominal wall. The incision traverses skin, anterior rectus sheath, posterior rectus sheath above the arcuate line, fascia transversalis and extraperitoneal fat. The incision maybe extended upwards to the xiphoid process to the sternum (Mayo-Robson incision). In this manoeuvre, troublesome haemorrhage from the superior epigastric artery is frequently encountered. In this incision, there are different ways of dealing with the rectus- The muscle maybe displaced outwards intact without any further interference with it. When the wound is closed, the muscle returns to its bed and forms the most efficient protection possible to the line of the incision, which it directly covers. This is a sound incision extensively used on the right or left of the midline. When used to deal with the terminal part of the pelvic colon or for excision of the rectum, the incision extends low down, so that the rectus maybe mobilised down to its insertion to the pubis should the incision through the rectus be made too far laterally, the nerves will be divided and the muscle paralysed. Security in closure is based on the same principles as closure of a midline incision, but at this site, the fibres of the anterior and posterior sheath are transverse and may not hold sutures well. Special care is therefore necessary in suturing. In addition, since the blood supply enters with the nerve as extensive split combined with a tight closure may result in ischaemia to the medial part of the muscle enclosed within the incision. However, if the muscle is split well medially, only the small medial segment of muscle will be affected and this has been shown by experience to have nil effects. Splitting the muscle in the direction of its fibres is quicker and closure is as effective as the muscle displacing procedure.

An oblique incision in the line from the tip of the 12th rib to halfway between the umbilicus and the pubis gives good exposure. The posterior limit will depend on requirements and anteriorly it usually ends at the lateral border of the rectus. It gives good exposure of laterally situated tumours such as those of kidney or peripheral colon. The flat muscles are cut across and no nerves are divided. If necessary, the rectus sheath maybe opened and the muscles retracted medially or the muscle maybe cut across. In case of retroperitoneal structures, the peritoneum is not entered,

but is displaced medially and the dissection carried around the periphery of the peritoneum.

CONCLUSION

In this study, the demographic pattern and the most common clinical and surgical factors that is thought to be directly involved with the condition has been reported. Proper treatment at the given time is the necessity of the hour. The patient tends to neglect sometimes and ultimately end up with complications. So, the necessary precautions have to be taken by understanding the complications involved.

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