

Original Article

Management of Incisional Hernia by Preperitoneal Mesh Repair : A Prospective Study in Rural Population

Bhaskaran A, Jyotindra Singh, Basvarajappa M, Harsha Kodliwadmth

Department of General Surgery, Sri Devaraj Urs Medical College, Kolar

ABSTRACT

The incidence of incisional hernia in literature is 2- 11% following all laparotomies and it is a source of morbidity and requires high health care costs. This study was undertaken to assess the magnitude of various factors leading to development of this condition & to evaluate the technique of preperitoneal mesh repair of incisional hernias with regards to post operative complications, hospital stay and recurrences, if any. This was a prospective study of 100 cases of incisional hernia who attended our OPD from May 2008 to May 2010.

In the present study, preperitoneal mesh repair had excellent long-term results with minimal morbidity. Comparing other types of mesh repair, the preperitoneal mesh repair is the gold standard treatment for incisional hernia.

Key words: Incisional hernia, Preperitoneal, Mesh repair.

INTRODUCTION

Incisional hernia is the only hernia considered to be truly iatrogenic. Ian Aird defines incisional hernia as a diffuse extrusion of peritoneum and abdominal contents through a weak scar of an operation or accidental wound. It occurs due to the failure of the lines of closure of abdominal wall following laparotomy.^[1, 2] The incidence of incisional hernia in literature is 2- 11% following all laparotomies and it is a source of morbidity and requires high health care costs.^[3]

Corresponding Author:

Dr. Bhaskaran A.

Prof. & HOD,

Department of General Surgery,

Sri Devaraj Urs Medical College,

Tamaka, Kolar - 563 101

Ph: 09845045230

Email: drabhaskar@in.com

As a result of high recurrence rate in the repair of incisional hernia, various types of repairs have been used both anatomical and prosthetic. Surgical repair is difficult in cases of large abdominal defects, when the herniated viscera have "lost their right to reside" in the abdominal cavity. The results have been disappointing with a high incidence of recurrence of about 30-50% after anatomical repair^[4] and 1.5-10% following prosthetic mesh repairs.^[5] The introduction of prosthetics has revolutionized hernia surgery with the concept of tension free repair.

This study has been undertaken to assess the magnitude of various factors leading to development of this condition and to evaluate the technique of preperitoneal (sub lay) mesh repair for incisional hernias with regards to post operative complications, hospital stay and

Original Article
The Journal of the American Medical Association
Volume 281, Number 17, May 19, 2001
Page 1401

Editorial
The Journal of the American Medical Association
Volume 281, Number 17, May 19, 2001
Page 1401

Original Article

Editorial
The Journal of the American Medical Association
Volume 281, Number 17, May 19, 2001
Page 1401

Original Article

Editorial
The Journal of the American Medical Association
Volume 281, Number 17, May 19, 2001
Page 1401

Original Article

Editorial
The Journal of the American Medical Association
Volume 281, Number 17, May 19, 2001
Page 1401

recurrences, if any.

MATERIALS AND METHODS

This is a prospective study of 100 patients of Incisional hernia who attended OPD of R. L. Jalappa Hospital from May 2008 to May 2010. Exclusion criteria included all complicated incisional hernias.

All patients were admitted through outpatient department (OPD). The epidemiological data i.e. the name, age, sex, medical record number, postal address and phone number were noted at the time of admission. The clinical features and their duration, time of initial operation and the interval between the first surgery and appearance of incisional hernia were recorded in the data.

All patients were evaluated for systemic disease or precipitating cause. Patients who had hypertension, diabetes mellitus or cough were controlled preoperatively. Routine investigations were done for all patients.

A day prior to surgery informed consent was obtained from the patients after explaining all

possible effects and complications of the procedure. All patients were given preoperative antibiotics. The procedure was done under general anaesthesia, spinal or epidural anaesthesia in supine position. In all cases, old operative scar was excised, generous skin incision was used to permit adequate exposure of hernial sac and defect.

The sac was opened and contents were reduced after lysis of the adhesions. The excess sac was excised; peritoneum was closed with absorbable synthetic suture. Adequate preperitoneal plane was prepared between the posterior rectus sheath and peritoneum (Fig1). Mesh was placed and fixed with prolene number 2-0 or 3-0 sutures (Fig 2). Suction drains were laid on the mesh and brought out through separate stab wounds. Muscular aponeurotic structures repaired with prolene number 1. Skin was closed after insertion of suction drain in subcutaneous plane.

Suction drain was removed once the drainage was less than 25 to 30 cc. Antibiotics were continued for three days. Postoperatively, deep

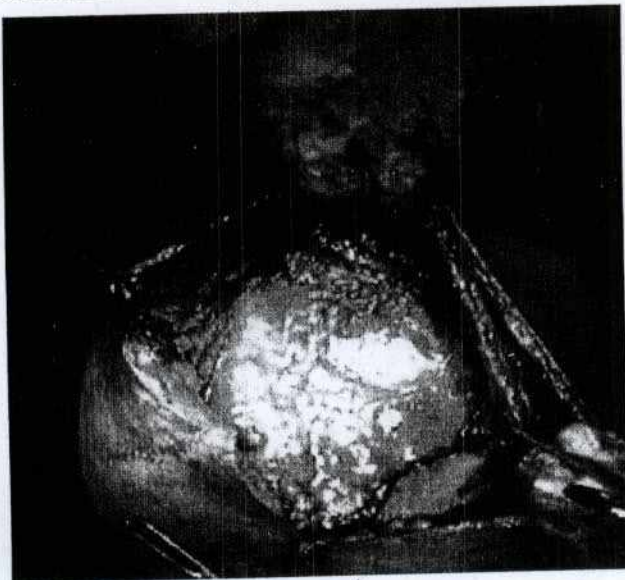


Fig 1: Preperitoneal Plane Being Prepared

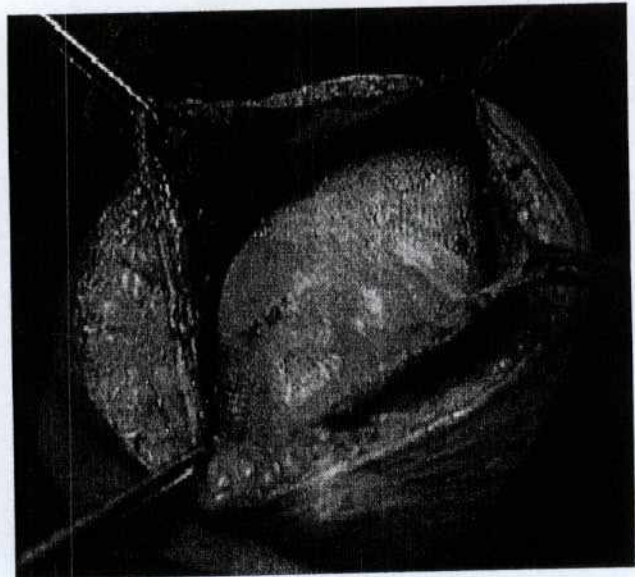


Fig 2: Preperitoneal Mesh Repair

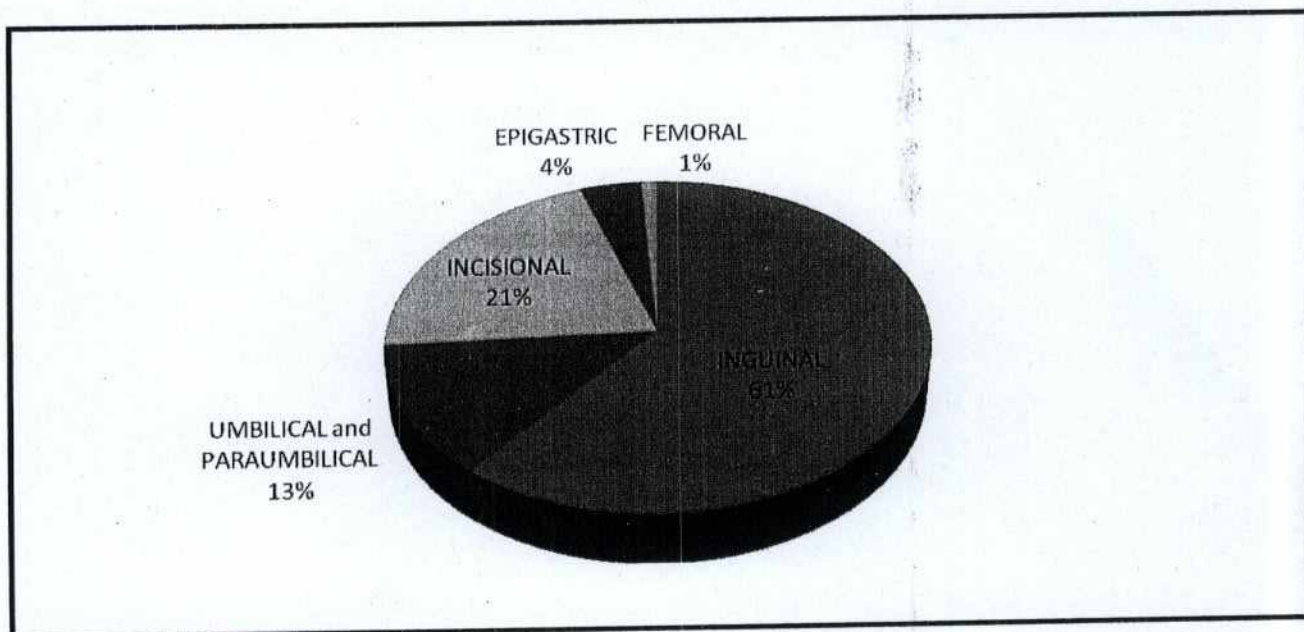


Fig 3: Incidence of various hernias

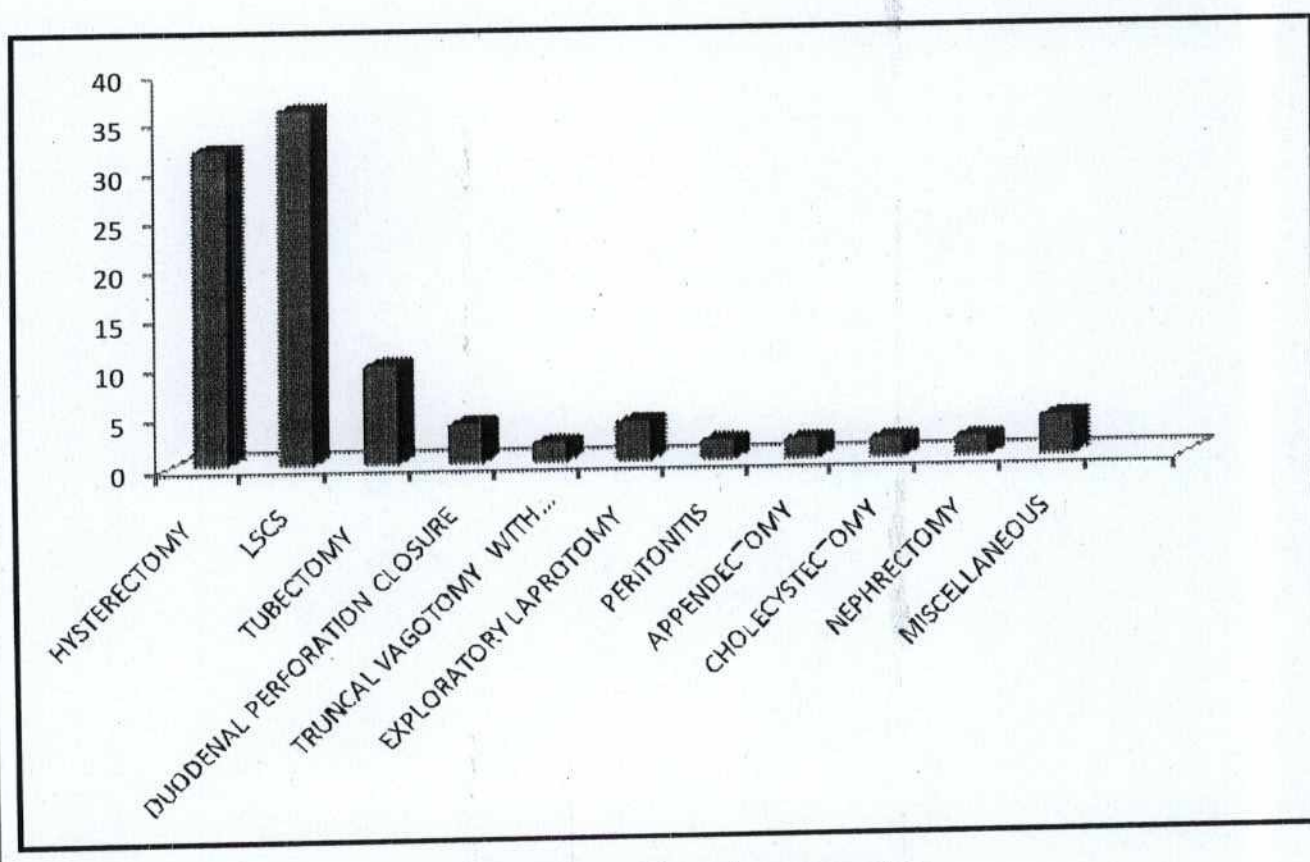
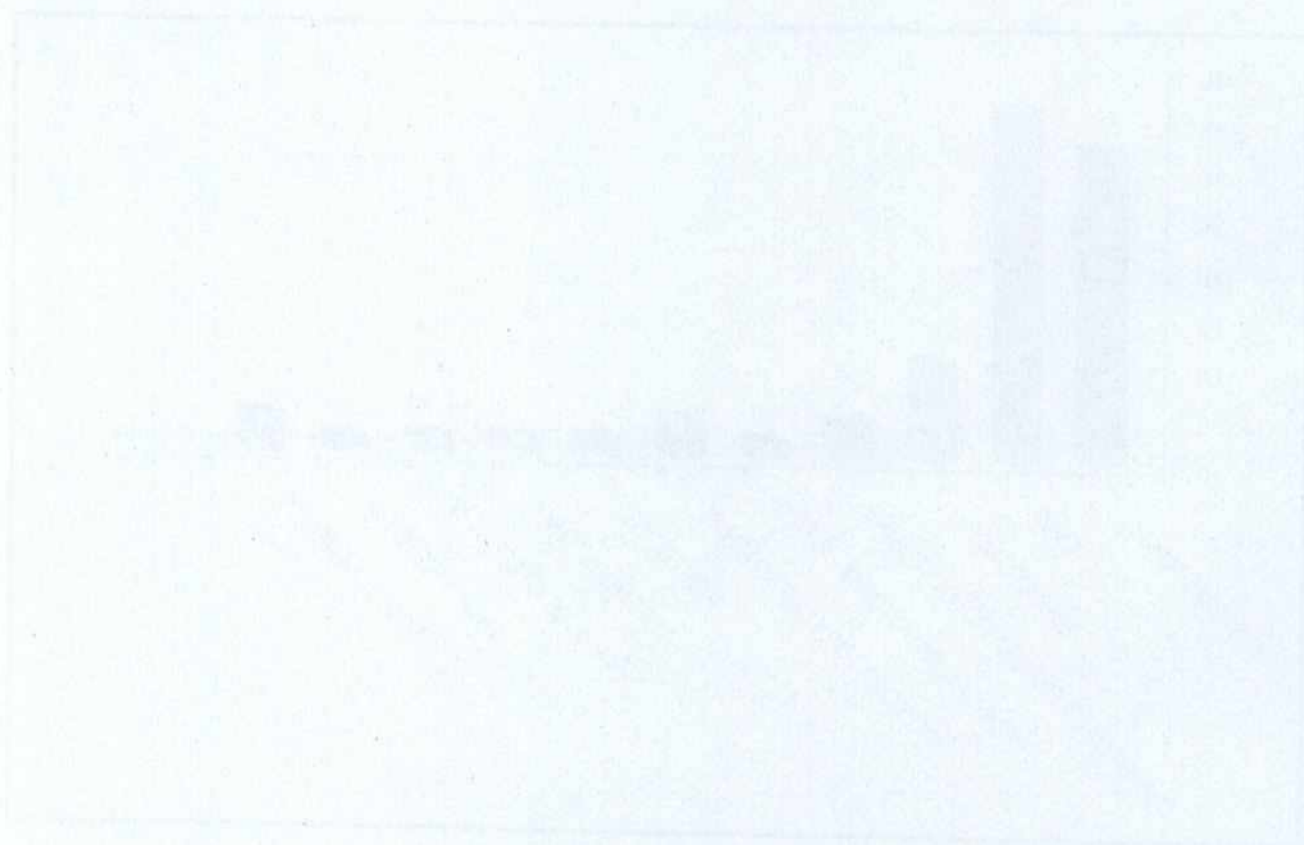


Fig 4: Incidence of previous surgeries



breathing exercises, movement of limbs in bed was advised as soon as patient recovered from anaesthesia.

Early limited ambulation was done once the patient was able to bear the pain. Skin sutures removed on 7th day and in few cases after 10th day. At discharge, patients were advised to avoid carrying heavy weights and advised to wear abdominal belt. Patients were reviewed after one month and three months in all cases and few cases up to two years. At review, symptoms were asked for and operative site examined for any recurrence.

These cases were then analyzed and results were compared with existing literature.

OBSERVATION AND RESULTS

A prospective clinical study consisting of 100 patients with incisional hernia who have undergone preperitoneal mesh repair is undertaken to investigate the role of preperitoneal mesh repair and its postoperative complications. The following are the analytical results of all the cases and conclusion drawn from them.

Out of 470 cases of hernias operated at our hospital between May 2008 to May 2010, 60% constitute Inguinal hernia, 13% constitute Umbilical and Para umbilical hernias, 21% constitute Incisional hernia, 5% constitute Epigastric hernia, 1% constitute Femoral hernia (Fig 3).

In the study of 100 cases, incidence of incisional hernia is more common in females as compared to males. Incidence of incisional hernia is more common in 30-60 years age group. This is comparable with that of N. Anantha Krishnan et

al and Goel and Dubey studies.^[6]

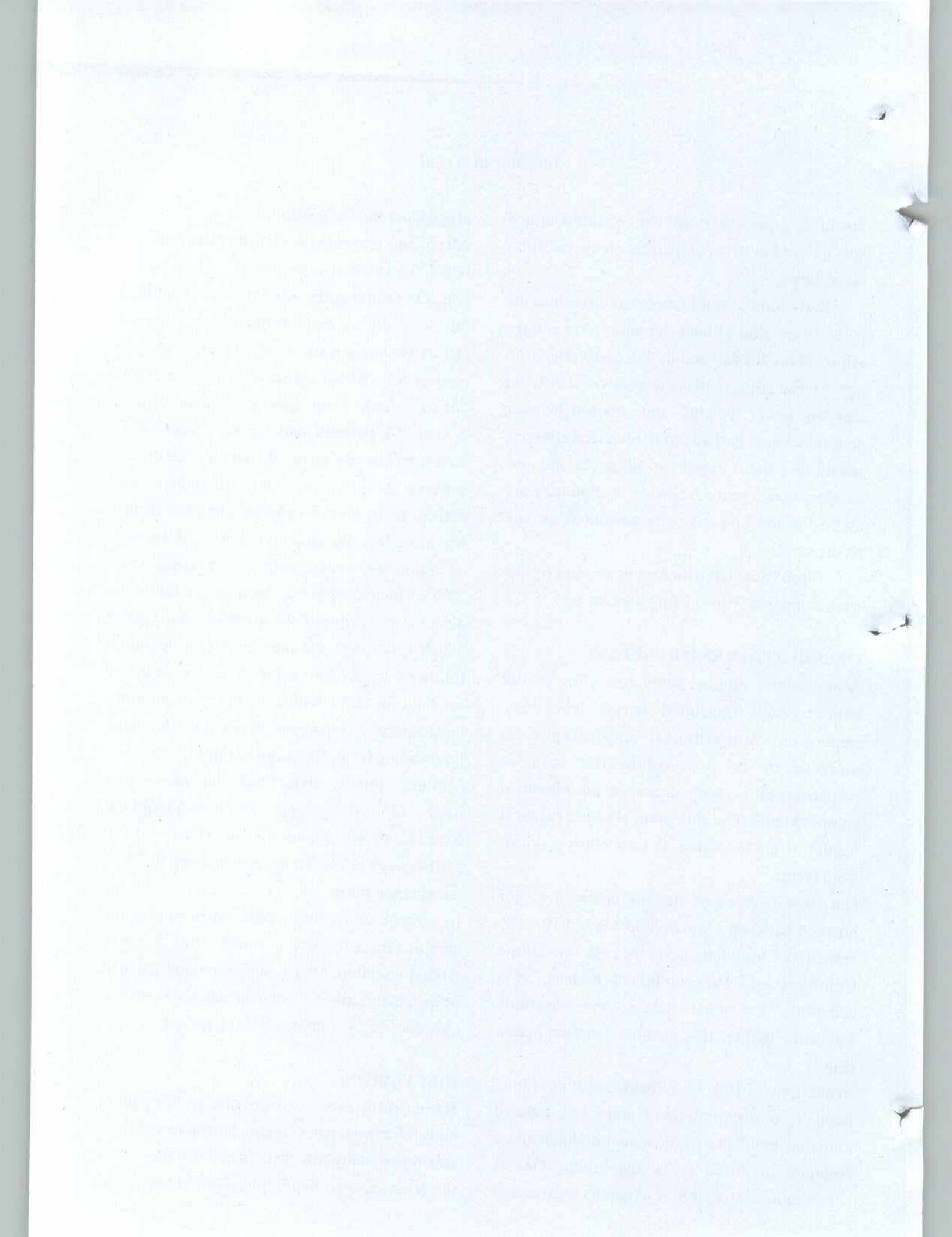
All patients presented with history of swelling of which 18 cases also presented with history of pain. On examination, swelling was reducible in 90 cases (90%) and irreducible in 10 cases (10%). We had approximately, 30% of cases with early onset of incisional hernia (within one year), 70% of cases had late onset of incisional hernia > 1 year. 50 patients had hernia defect which measured up to 24 sqcms. 40 patients had defects between 24-40 sqcms. Only 10 patients had defects more than 40 sqcms. Detailed history was taken from the patients regarding the type of operation they had undergone. In present study, 78% of Incisional hernia cases were following obstetric and gynaecological operations. Among which LSCS was the most common operation followed by hysterectomy. The GI surgeries account for 22% which includes exploratory laparotomy for intestinal obstruction, duodenal perforation, GJ and peritonitis (Fig 4).

Midline lower abdominal incisions was used in 74%, upper midline abdominal incisions in 8%, Pfannestiel incisions in 12%, Mc Burney's in 2%, Transverse incision in 4% of patients was used.

In present study, there were no postoperative complications in 86% of cases. Only 2% had wound infection, 10% had seroma and 2% had deep vein thrombosis. No recurrence was seen in any case in a 24 months follow up period.

DISCUSSION

Hernia recurrence is distressing to the patient and embarrassing to surgeon. Nowadays tension free repair using prosthetic mesh has decreased the recurrence to negligible. Despite excellent



results, increased risk of infection with implantation of a foreign body and cost factor still exist. Primary tissue repair is associated with high unacceptable recurrence rate. But nowadays tension free mesh repair is the ideal technique for hernia repair.

In the present study, age ranged from 25 years to 70 years and with peak incidence seen in 31 to 40 years age group (42%). There is a female preponderance noticed with 88%. In Bhutia WT et al study, the female: male ratio was 3:1.5 with female preponderance 84%.^[8]

In this study all patients presented with history of swelling, followed by abdominal pain in 18 %cases. In our series, reducible hernia accounted for 90% and 10% of cases had irreducible hernia. We had approximately 30% of cases with early onset of incisional hernia (within one year of previous surgery) whereas 70% of cases had late onset of incisional hernia (> 1 year of previous surgery), of which 28% of cases presented with > 10 years.

In our present study, over 78% of cases occurred following obstetrics and gynaecological operations, and around 22% of cases following general surgical operations. Of 100 cases, 32% of cases had hysterectomy, 26% of cases tubectomy, 20% of cases LSCS, 12% of cases laparotomy and procedure, 2% of cases appendicectomy, 4% of cases had undergone umbilical hernia and 4% of cases had recurrent incisional hernia, who had undergone anatomical repair.

In the present study, 12 patients (12%) had undergone more than one surgery and 4 patients (4%) had already been operated for incisional hernia by anatomical repair. Repeated wounds in

the same region or just parallel to each other will often lead to development of herniation as shown by Ponka series. In this study, 74% of cases developed incisional hernia through lower midline incision, 12% through Pfannensteil incision, 8% through upper midline incision, 4% through transverse incision and 2% through McBurney's incision.

In the present study, postoperative wound infection occurred in 26 cases (26%), which healed by secondary intention. In Ponka series, it accounts for 24%. Bucknell, Cox and Ellis, in their study of 1129 laparotomy closures, found that 48% of their patients with incisional hernia had previous wound infection and those with wound infection developed hernias almost four times more often.^[9] Prevention of wound sepsis is therefore a prime objective in all abdominal operations.

Associated risk factors are diabetes mellitus (16%). Obesity (20%), grand multi para(10%) and COPD (4%). In the present study, we encountered 14% of cases with postoperative complications of which 2% of cases with postoperative wound infection, seroma in 10% of cases and deep vein thrombosis in 2% of cases. There were no postoperative complications in 86% of cases.

Postoperative complications were less in the present study (14%) when compared with other mesh repair techniques by Leber et al which was 48%. Postoperative ileus ($p=0.047$) and recurrence rate ($p=0.002$) are significantly less in the present study when compared to Leber et al study. But seroma is significantly ($p=0.046$) more in the present study compared to Leber et al study.^[10]

10. Leber Geoffrey E, Garb Jane L, Alexander Albert I, Reed WP. Long-term complications associated with prosthetic repair of incisional hernia. *Arch Surg* 1998; 133 (4): 378-382.
11. Antoine Hamy, Patrick Pessaux, Tephane S, Serge Radriamananjio, et al. Surgical treatment of large incisional hernia by an intraperitoneal Dacron mesh and an aponeurotic graft. *J Am Coll Surg* 2003 196 (4): 531-534.
12. Devries Reilingh TS, Van Geldere D, Langenhurst B, Dejong D, van der wilt GJ, van GH. Repair of large midline incisional hernias with polypropylene mesh: Comparison of three operative techniques. *Hernia* 2004; 8 (1): 56-59.
13. Machairas A, Misiakos EP, Liakakos T, Karatzas G. Incisional hernioplasty with Extraperitoneal on lay polyester mesh. *Am J Surg* 2004; 70 (8): 726-729.

Source of Support: Nil Conflict of Interest: Nil
--

THE UNIVERSITY OF CHICAGO
DIVISION OF THE PHYSICAL SCIENCES
DEPARTMENT OF CHEMISTRY
5408 S. UNIVERSITY AVE.
CHICAGO, ILL. 60637
TEL. (312) 837-3000
FAX (312) 837-3000
WWW.CHEM.UCHICAGO.EDU

THE UNIVERSITY OF CHICAGO

THE UNIVERSITY OF CHICAGO
DIVISION OF THE PHYSICAL SCIENCES
DEPARTMENT OF CHEMISTRY
5408 S. UNIVERSITY AVE.
CHICAGO, ILL. 60637
TEL. (312) 837-3000
FAX (312) 837-3000
WWW.CHEM.UCHICAGO.EDU

Wound infection was noticed in 7%, seroma 14% and chronic pain 7%, whereas, in the present study wound infection was 2%, seroma 10% and DVT 2%. In comparison with underlay mesh repair by Antonie Hamy *et al*, wound infection was noticed in 14% of cases, recurrence rate was 3% and death in 0.6% of cases.^[11]

In our study, most of the hospital stay was spent in preoperative workup and in the treatment of associated medical illness, if any, to reach the normal parameters for safe surgery. Total duration of hospital stay is increased when risk factors are present with $p=0.103$ and duration of hospital stay after surgery also increased when the risk factors are present with $p=0.390$.

In the present study, we had followed up all the patients after discharge for 15 days, 1 month, 3 months and few cases up to 24 months of duration. There was no recurrence of incisional hernia noticed in the present study.

Luidendi JK *et al* reported a recurrence rate of 46% with suture repair technique and 23% with mesh repair technique. de Vries Relingh TS *et al* reported a recurrence rate of incisional hernia following different techniques of mesh repair as follows: on lay technique 28.3%, inlay technique 44%, and underlay technique 12%.^[12] Macharias A *et al* reported a recurrence rate of incisional hernia following on lay mesh repair with 9% of cases.^[13] Antonie Hamy *et al* reported a recurrence rate of incisional hernia following underlay mesh repair with 3.1% of cases.

CONCLUSION

In the present study, preperitoneal mesh repair had excellent long-term results with minimal morbidity & recurrence rates. Preperitoneal

mesh repair is safer and is the procedure of choice for complex multirecurrent incisional hernia. Therefore our study affirms that preperitoneal mesh repair is the ideal repair technique and highly recommended for large incisional hernias.

REFERENCES

1. Da-silva AL, Patroiaanu A. Incisional hernias; factor influencing development. *South Med. J* 1991; 84: 1500-155.
2. Shaikh NA, Shaikh NM. Complaritive study of repair of incisional hernia. *JPMA* 1994; 2:389.
3. Santor TA, Roslyn JJ. Incisional hernia. *Surg Clin North Am* 1993; 73: 557-70.
4. George CD, Ellis H. The results of Incisional hernia repair. A twelve year review. *Ann R Coll Surg Engl* 1986; 68: 185-7.
5. Bauer JJ, Harris MT, Gorfine SR, Kreel I. Rivesstoppa repair of giant incisional hernias. Experience with 57 patients. *Hernia* 2002; 6: 120-3.
6. Goel TC, Dudey PC. Abdominal incisional hernias, anatomical technique of repair. *Ind J Surg* 1981; 43: 324-327
7. Michael Zinner, Seymour I. Schwartz, Harold Ellis. *Maingot's: Abdominal operations*. 10th ed, Vol. 1, 423-425 and 548-572.
8. Bhutia WT, Sarath Chandra S, Srinivasan K, Anantha Krishnan N. Factors predisposing to incisional hernia after laparotomy and factors influencing recurrence rate after different methods of repair-A prospective study of 220 cases *Ind J Surg* 1993; 55(11): 534-543
9. Bucknell TE, Cox PJ. Burst abdomen and incisional hernia: A prospective study of 1129 major laparotomy. *Br Med J* 1982; 284: 931.

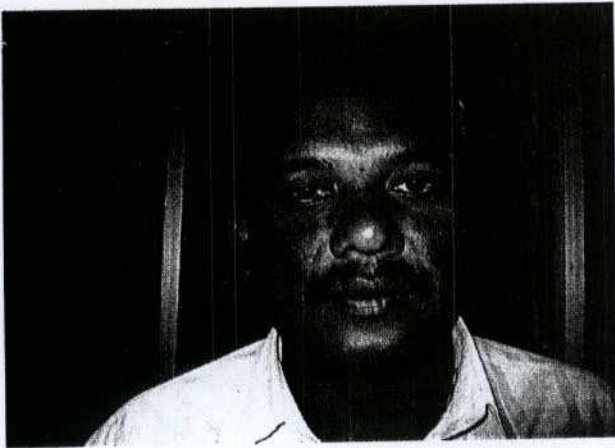


Figure 1 Pigmentation of right side of face

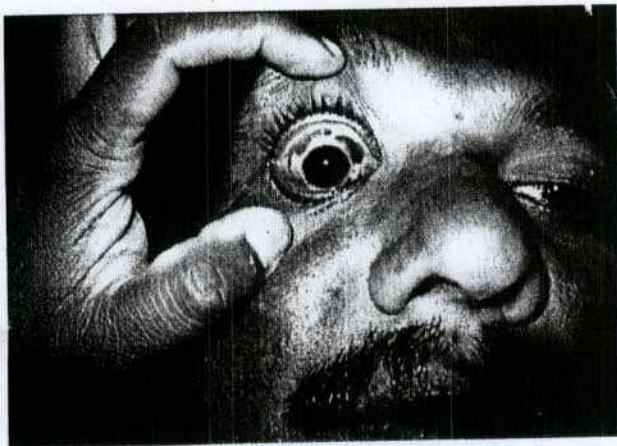


Figure 2 Scleral pigmentation-Right eye

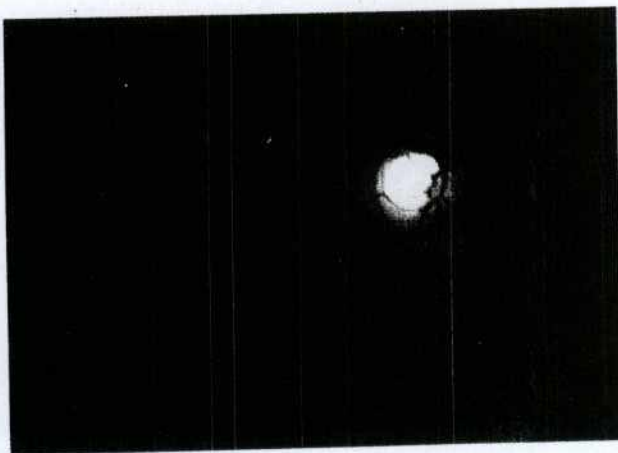


Figure 3 Glaucomatous cupping in the right eye

tonometry in the right eye was 24mmHg and 16mmhg in the left eye. Automated perimetry of the left eye showed a normal central 30° field, right eye revealed an early superior arcuate scotoma. Therapy was started with Timolol 0.5% eye drops twice daily.

DISCUSSION

Nevi of Ota occurs most frequently in Asian populations, with an estimated prevalence of 0.2-0.6% for nevus of Ota in Japanese persons⁽²⁻⁴⁾. Ocular hyper pigmentation most commonly occurs in the episclera, but may commonly involve the conjunctiva, tarsus, cornea, lens, choroid, optic disc, anterior chamber, angle and iris. Ocular pigmentation occurs between 22% and 77% of cases according to different studies^(5,6).

Elevated intraocular pressure, one of complications of this condition, was seen in approximately 10% of patients in one series.³ Several glaucoma mechanisms have been described including congenital glaucoma, acute angle closure, uveitis and open angle glaucoma, although obstruction of aqueous outflow by accumulated melanocytes in an open angle is the most likely mechanism directly associated with nevus of ota^(7,8). Transformation to malignant melanoma is the most serious complication and has been reported in several white patients⁽⁷⁾.

References

1. Mukhopadhyay AK. Nevus of Ota associated with nevus of Ito. *Indian J Dermatol Venereol Leprol* 2004; 70:112-3.
2. Hidano A, Kajima H, Ikeda S, Mizutani, Miyasato H, Niimura M. Natural history of

1. The first part of the report is a general introduction to the subject of the study. It discusses the importance of the study and the objectives of the research.

2. The second part of the report is a detailed description of the methodology used in the study. It includes information about the sample size, the data collection methods, and the statistical analysis techniques.

3. The third part of the report is a discussion of the results of the study. It presents the findings of the research and compares them with the previous studies in the field.

4. The fourth part of the report is a conclusion and a list of references. The conclusion summarizes the main findings of the study and provides recommendations for future research. The references list the sources of information used in the study.

5. The fifth part of the report is an appendix containing additional information related to the study, such as raw data, detailed calculations, and supplementary figures.

DERMATITIS ARTEFACTA

Definition

Dermatitis artefacta is an artefactual skin disease caused entirely by the actions of the fully aware (not consciously impaired) patient on the skin, hair, nails or mucosae. These patients hide the responsibility for their actions from their doctors.

Dermatitis artefacta is more common in health care workers and their families because this environment provides not only a ready 'model to copy' but also a social structure where illness is always understood and allowed for.

Clinical features

The nature of the clinical symptomatology in dermatitis artefacta is the 'hollow history'. The patient describes the sudden appearance of complete lesions with little or no prodrome. There is no complete description of the genesis of individual skin lesions. The signs invariably

appear overnight. There is a prolonged and elaborate description of complications and failure to heal. Characteristically, established lesions may undergo sudden deterioration at the same time as new lesions appear. In doubtful lesions, skin biopsy can be done to rule out other dermatoses.

Clinical signs

The most common site of involvement is the face, particularly cheeks. The dorsa of the hands rather than the palms are the next most common. Cutaneous lesions are produced by every known means of damaging the skin. Crude destructive processes are the result of thermal, chemical or instrumental injury. Considerable atrophy and pigment change occur with resolution. There may be unexpected complications to the artefactual damage leading to severe infections. In all established cases, psychiatric evaluation and treatment can be done to prevent perpetuation of lesions.

