

SCOPE OF TRANSVERSE ABDOMINAL INCISION IN GYNAECOLOGY

by

J. MITRA,* M.B.B.S., D.G.O., M.O., M.R.C.O.G., F.I.C.S.

and

TUSHAR K. MAITRA,** M.B.B.S., D.G.O., M.Sc., Ph.D.

In recent years, with improvement in the ancillary methods for preoperative diagnosis and with the availability of better anaesthesia, more and more surgeons are advocating the use of transverse abdominal incision in gynaecological surgery for benign lesions. This brings up the question of immediate and remote results of various types of the abdominal incisions. In the present article an attempt has been made to evaluate the scope of transverse abdominal incision in gynaecological surgery.

Material and Methods

The present study is based on an analysis of 260 gynaecological abdominal operations performed by transverse incision during the period April 1960 to October 1962. During the same period a total of 978 gynaecological abdominal surgeries were performed, using longitudinal abdominal incision. Thus, out of a total of 1238 gynaecological operations performed through the abdominal route in Eden Hospital Medical College, Calcutta, the incidence of transverse abdominal incision was 21%.

In the present review, the results of

*Formerly Clinical Tutor, Eden Hospital, Calcutta. At present Clinical Tutor, Institute of Post-Graduate Medical Education and Research, Calcutta.

**Former post-graduate student, Eden Hospital, Calcutta.

Received for publication on 25-8-1970.

follow up from 6 to 18 months have been considered. Table I shows the types of gynaecological operations for which transverse abdominal incision was used.

TABLE I
Showing the type of Gynaecological Operations in which Transverse abdominal incision was used

| Type of Operations | No. of cases. | Percentage. |
|---|---------------|-------------|
| 1. Ventrisuspension | 28 | 10.8% |
| 2. Hysterectomy for various benign conditions. | 94 | 36.1% |
| 3. Myomectomy | 20 | 7.6% |
| 4. Operations for broad ligament cyst, tumour etc. | 15 | 5.8 |
| 5. Salpingectomy and Salpingo-oophorectomy. | 48 | 18.4% |
| 6. Appendectomy (with other gynaecological operations). | 5 | 1.9% |
| 7. Operations for benign lesions of ovary. | 50 | 19.2% |
| Total No. of cases | 260 | 100% |

Technique of operation

In the present series general anaesthesia was used on 258 patients and in 2 cases epidural block anaesthesia was used.

(a) *Position of the patients:* The patient was kept in Trendelenberg position so that the fatty panniculus was displaced upwards.

(b) *Incision and Exposure:* A curvilinear incision, 10 to 14 centimeters long was made about 5 to 7 centimeters above the upper border of symphysis pubis. The subcutaneous tissue and the anterior

rectus sheath were then incised in the same direction. The upper and lower flaps of the rectus sheath were lifted up and separated from the underlying recti by snips of scissors and gentle gauze dissection. After retracting the recti muscles laterally the peritoneum along with the fascia transversalis were incised transversely taking care so that the inferior epigastric vessels were not injured.

(c) *Closure*: The parietal peritoneum was first sutured with double-"o" chromic catgut on an atraumatic needle using continuous stitches. The cut ends of the fascia transversalis were then approximated by a few interrupted stitches. After apposing the recti muscles by 2 or 3 interrupted stitches, the rectus sheath was closed by a continuous suture. The subcutaneous tissue was then approximated by a few interrupted stitches using plain catgut. The skin was closed by silk with interrupted stitches.

Postoperative management

In the postoperative period the routine managements were carried out as regards diet, drugs, bladder and bowel with the following exceptions.

(1) The patients were allowed to sit up on the bed after 24 hours and to stand up and move about after 48 hours of the operation.

(2) The silk stitches from skin were removed either on the 4th or 5th postoperative day.

(3) When the patients were otherwise fit, they were discharged from the hospital by about 8th. day postoperatively.

In Table II, the immediate and remote postoperative results following transverse incision are compared to those following vertical abdominal incision.

Comments

Advantages:

There is a remarkably low incidence of postoperative complications (Table

TABLE II
Showing various types of Postoperative Complications
Total No. of cases with transverse incision 260
Total No. of cases with vertical incision 978

| Type of complications. | Authors | Transverse | Vertical incision. |
|---|-----------------------------|--------------------------------|----------------------|
| 1. Post-op. respiratory complications. | Present series | incision 12 cases (4.5%) | 156 cases (15.8%) |
| | Rees and Coller (1943) | 2.6% | 9.5% |
| 2. Wound infections, sepsis and stitch abscess etc. | Present series | 4 cases (1.5%) | 60 cases (6.1%) |
| 3. Disruption of abd. wound | Present series | Nil | 2 cases (0.21%) |
| | Thompson & Assoc. (1949) | 0.5% | 3.5% |
| 4. Post-op. incisional hernia. | Present series | Nil | 6 cases (0.61%) |
| 5. Post-op. urinary retention | " | 9 cases (3.4%) | 111 cases (11.2%) |
| 6. Post.-op. intestinal paralysis | " | Nil | 2 cases (0.21%) |
| 7. Post-op. venous thrombosis | " | Nil | 2 cases (0.21%) |

II). This is in accordance with the observations of Rees and Coller (1943), Singleton and Blocker (1939), and Thompson and associates (1949).

With a slight retraction of the abdominal wall, a good exposure of the pelvic organs is obtained. When associated appendectomy is needed, it gives an easy approach to it. After a transverse abdominal incision, for better exposure recti muscles may be transected and not much of harm is done by this procedure. Rosenblatt and others (1945) have clearly shown that the union of the transected recti is good with the formation of a thin scar comparable to an additional linea transversus. In the present study transection of the recti was not done in any case.

Thompson, Maclean and Coller (1949) have observed a remarkably low incidence of postoperative adhesions after transverse abdominal incision. They further observed that, even with collection of pus or exudate in the abdominal wound, it could be drained easily from the lateral dependant angles of the wound. The same authors also found it easier to close a disrupted transverse abdominal incision. In the present series, 2 cases needed repeat laparotomy after transverse incision and in both cases no evidence of adhesions was encountered while opening the abdomen. Three cases of stitch abscess in the present series healed satisfactorily after drainage of the pus within 10 days' time and the resultant scars were also healthy. Among all cases having a transverse abdominal incision, in about 50% of the cases the abdominal skin scars were non discernible 6 to 8 months postoperatively and were less painful.

Because of early ambulation, there was not a single incidence of postopera-

tive venous thrombosis in the present series. It was also noted during the postoperative period that the patients undergoing transverse abdominal incision seemed psychologically better off. This was mainly due to early ambulation and less pain and discomfort.

Anatomical and Physiological considerations:

The skin scars resulting from transverse abdominal incision are much firmer, because the incision lines run parallel to the Langers line of skin cleavage (Thompson and associates, 1949).

In the anterior abdominal wall, the rectus sheath encloses the vertical group of abdominal muscles, namely rectus muscle and variable pyramidalis. It is formed of the aponeurotic fibres of the three flat muscles, which are inserted into the linea alba and take their point of action in that structure. The fibres of these flat muscles run essentially in the transverse direction. A vertical incision through the rectus sheath must cut across these aponeurotic fibres.

The nerve supply of the anterior abdominal wall has a peculiarity that the nerves after reaching the lateral border of the rectus muscle form little anastomoses. For this reason any incision vertically through the rectus sheath and muscle must denervate the portion medial to it. A transverse incision through these structures will do no such gross damage to the nerve supply. Mason (1929) has postulated that the weakness and bulging of the abdominal wall, medial to a vertical incision through the rectus is most probably due to denervation of the portion of the muscle medial to the incision. Also probably because of less chance of trauma to nerves in a transverse incision, the frequency of

occurrence of neuromas and neuritis is less common (Bencroft, 1930).

In the anterior abdominal wall, except in the midline and linea alba, there is rich anastomosis of blood vessels so that in a transverse incision even though for better exposure inferior epigastric vessels are ligated, no damage is done by this procedure. But the fact that the midline and the linea alba have the poorest blood supply contributes undoubtedly to the higher incidence of hernia and disruption through vertical midline incision.

The contraction and relaxation of the three flat muscles of the anterior abdominal wall take part in maintenance of respiration and in the acts of coughing, vomiting, defaecation and micturition. After vertical abdominal incision, in such actions, the transected aponeurotic fibers are subjected to tension so that wound edges tend to separate whereas in transverse incision they are approximated. Sloan (1927) has noted that the force necessary to bring the edges of a vertical incision is 30 times greater than that is needed to bring the edges of a transverse incision. He further noted that the longer the vertical incision, the greater is the force necessary to bring the edges together.

Disadvantages and Limitations:

It takes a little longer time to fashion a transverse incision but this is compensated by the greater ease experienced during closure. There are increased chances of bleeding because of more vascularity in the lateral part of the anterior abdominal wall. Proper exploration of the whole of the abdominal cavity is not possible and so this is not favoured when one is contemplating laparotomy for some acute conditions with uncertain diagnosis. This is also

true in operations for a pelvic tumour extending upto or above the umbilicus as one cannot get above the swelling through this type of incision.

In cases where a previous laparotomy was performed through a vertical incision and one is not sure as regards the extent of adhesions, it is prudent not to attempt to open the abdomen by a transverse incision. In the present study there were two such cases, both having had previous caesarean section through vertical incision, and in both cases due to extensive omental adhesions it was difficult and painstaking to get proper exposure and approach to pelvic organs through a transverse abdominal incision.

Summary and Conclusion

(1) Two hundred and sixty cases undergoing transverse abdominal incision for various gynaecological operations for benign conditions are presented.

(2) The technique of the operation is described—transaction of the recti was not done.

(3) The postoperative results of patients undergoing transverse abdominal incision are compared with similar cases operated by vertical incision.

(4) The advantages, disadvantages and limitations of the incision with the anatomical and physiological principles involved are discussed.

(5) It seems that a transverse abdominal incision is superior to vertical abdominal incision in planned gynaecological surgery for benign conditions.

Acknowledgement

We are thankful to the Principal-Superintendent, Medical College, Calcutta, and to the Professor-Director, Eden Hospital, Calcutta for their kind permission regarding the use of the hos-

pital records. We are greatly indebted to Prof P. C. Das, M.B., M.O., F.I.C.S. for his valuable suggestions in preparing this article.

References

1. Bencroft, Arch. Surg., 21: 289, 1930.
2. Mason, J. I.: Arch. Surg. 19: 129, 1929.
3. Rees, V. L. and Collier, F. A.: Arch. Surg., 47: 136, 1943.
4. Rosenblatt, M. S.: Surg. Gynec. and Obst., 80: 641, 1945.
5. Singleton, A. O. and Blocker T. J. (Jr): J. A. M. A., 112: 122, 1939.
6. Sloan, G. A.: Surg. Gynec. & Obst. 45: 678, 1927.
7. Thompson, J. B., Maclean, K. F. and Collier, F. A.: Arch. Surg., 59: 1267, 1949.