

## **THE USE OF FIBRIN GLUE TO FIX MESH IN LAPAROSCOPIC HERNIA REPAIR**

The following is a report on 74 patients treated for inguinal hernia between November 1999 and February 2001. The unique feature of their treatment was the use of fibrin glue. 84 hernias were treated using this technique as 10 of these patients had bilateral hernias.

This was a prospective trial conducted under license from the Therapeutic Goods Administration (the equivalent of the FDA in Australia). The trial was approved by the Holroyd Private Hospital Ethics Committee. The two-year follow up results are presented.

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There was a continuous series of 74 patients with inguinal hernia treated by laparoscopic hernia repair. The repair was carried out by the transabdominal preperitoneal approach (TAPP). A large sheet of polypropylene mesh was placed in the preperitoneal space and fibrin glue was applied to the mesh and the peritoneal flap, which is dissected during a TAPP procedure. The peritoneal flap is sealed on to the mesh using the fibrin glue. (A video of this part of the procedure will be shown.)

There were 74 patients and 10 of the patients had bilateral hernia thus making a total of 84 groin hernias that were treated by the technique described. All of the patients were men. There were 27 direct hernias and 65 indirect hernias. (There were 8 patients who had pantaloon hernias, i.e. had both direct and indirect hernias.) There were 13 recurrent hernias. There were 13 inguinoscrotal hernias treated, which is mentioned as it may be significant in terms of the follow up of those patients.

The glue was placed in the preperitoneal space both on the peritoneal flaps that had been dissected and the "raw surface" left after dissection of the inguinal hernia sac and the associated peritoneal flap. Benefits of the fibrin glue in addition to its adherence factor will be proposed.

### **The Results**

All patients were followed in the first 1-6 months after their surgery and at that time there was no definite evidence of recurrence of hernia. During the period from March 2003 to June 2003 there has been follow up on all but two patients who could not be traced after an exhaustive search. 73 of 74 patients have been followed in excess of two years and some of them in excess of three years. 71 of the 74 patients were delighted with the outcome of the procedure and there was no evidence of recurrent hernia. Two patients had a recurrent hernia. The detail of these two patients is of interest and there may be lessons from the nature of their hernia and the type of treatment that might be recommended and this will be discussed.

A subset of the patients who were covered by workers' compensation arrangements in the state of New South Wales in Australia were analysed for their ability to return to work. This was studied because of the huge economic implications of early return to work after the treatment of this very common condition in men. The results were as follows:

There were 26 patients treated under the workers' compensation arrangements in the state of New South Wales. The range of days away from work following the operative procedure was 2-19 days (this time off work includes the day of operation). The average time off work was 8.2 days. It is proposed that this is a major step forward in the management of groin hernia in working patients in New South Wales, Australia as it was standard practice until recently for patients to be off work after hernia repair for 6 to 12 weeks and sometimes longer.

Those working patients who were not covered by workers' compensation were also studied as a group (36 patients). The range of time taken off work for this group was 1-14 days with an average of 6.6 days.

The following benefits of using fibrin glue for fixing the mesh and the peritoneum in laparoscopic hernia repair are proposed.

1. That as reported in this study, the fibrin glue provided adequate adhesion and was equal to that reported in some series using metal staples (Catts PC et al, Laparoscopic repair of inguinal hernia. *MJA* 1994 161:15).
2. That the glue sealed blood vessels thus leading to less swelling post-operatively. There were no haematomas in this series.
3. That there may be less discomfort and swelling allowing earlier return to physical activity because of the sealant effect of the fibrin glue. The early return to work supports this contention. Several patients resumed extreme activities such as weight lifting and skiing within days of their operation.
4. That the peritoneal flap dissected for placement of the mesh may regain its blood supply rapidly due to contact with the fibrin glue and the fact that the fibrin glue held the large flap in place against the mesh immediately after surgery. It is proposed that the use of fibrin glue may lead to more rapid and complete revascularisation and re-peritonealisation of the operated area and therefore may be of benefit with both the TAPP repair and the totally extraperitoneal preperitoneal procedure (TEPP).

Special attention was paid to the two patients with recurrence of hernia in this series. One of these patients had had four previous recurrences and the recurrent hernia treated in this series was multi-loculated and quite extensive. The second recurrent hernia was a large inguinoscrotal hernia. With hindsight, it could be postulated that the mesh has dislocated soon after the operative repair in those large and sometimes complex hernias. It is difficult to know at the time of surgery whether or not a larger mesh or even multiple mesh should be used. As a result of the observation of these patients and other patients treated at the Sydney Hernia Clinic it has become a recommendation that all patients be followed up to detect early recurrence of hernia. It is proposed that early repeat laparoscopy with a view to reinforcement of the previous repair with extra mesh will lead to successful control of complex inguinal hernias.

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