Using surgical mesh in hernia repair

Surgical hernia mesh is now used routinely in hernia repair as it makes it much less likely that a hernia will come back. The mesh can be inserted to support the body wall in either an open operation or in a laparoscopic hernia repair. Medical-grade synthetic hernia mesh is used in straightforward cases and biological mesh is used to repair complex hernias, including incisional hernias.

Repairing uncomplicated hernias

Surgical hernia mesh can be used to repair a simple, ‘virgin’ hernia. The bowel that is protruding through the body wall is pushed back inside and then the gap in the muscle wall is covered by a piece of mesh that is cut to size. It can be put in place with a small incision made as part of an open hernia repair, or introduced during a laparoscopic hernia repair.

The hernia mesh used is made from a synthetic polymer, usually polypropylene. This causes very little reaction in the body. It is thin and flexible, so it moves with the body's organs. Mesh placed over the weakness in the body wall from the outside using a totally extraperitoneal (TEP) technique does not enter the body cavity at all, but lies over the body wall muscle just beneath the skin.

It is important that the surgeon stitches the hernia mesh in place using a tension-free method, so that no pulling occurs during healing.

Hernia repair mesh in complex hernia repair

Mr Charles Imber favours the use of the Strattice™ biological hernia mesh made from pig collagen. This is a natural material rather than a synthetic mesh and it reduces the risk of infection when used to repair a complex and potentially contaminated hernia.

Incisional hernias and hernias that recur are at high risk of becoming infected. Once a synthetic mesh becomes infected, it needs to be removed urgently. Repairing the hernia then becomes more difficult but evidence now shows that the Strattice™ mesh can be useful in these cases.

Mr Imber contributed to a study of over 50 patients with complex incisional hernias. Each received the Strattice™ mesh as part of their repair. Most also needed reconstructive surgery to replace abdominal scar tissue and although there were some complications, none of the patients required removal of the new mesh. All hernias were repaired effectively with a very low recurrence rate.

Hernia repair with hernia mesh – the future

The types of surgical mesh, both synthetic and biological, that are used in hernia repairs are improving all the time. Some of the older synthetic meshes have caused problems but the meshes used in surgery today have plenty of evidence showing they are safe and effective.

Biological meshes of different types are becoming more widely used and studies on groups of patients who have them will produce good information about which ones perform best over time.

Techniques in surgery are also improving all the time and techniques that may become standard in the future include:

- **Using partially dissolvable stitches** to hold the mesh in place. Over time, these break down in the body and the mesh stays in place through more natural fixation as it embeds in the body wall
- **Using fibrin glue** to hold the mesh in place. This avoids the need for stitches and may produce a more effective seal
- **Developing mesh made from biomaterials** that encourage the body’s natural tissue to regenerate to support the abdominal organs.