Umbilical hernia

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The umbilical defect is present at birth but closes as the stump of the umbilical cord heals, usually within a week of birth. This process may be delayed, leading to the development of herniation in the neonatal period. The umbilical ring may also stretch and reopen in adult life. This common condition occurs in up to 10% of infants, with a higher incidence in premature babies. The hernia appears within a few weeks of birth and is often symptomless, but increases in size on crying and assumes a classic conical shape. Sexes are equally a ff ected but the incidence in black infants is up to eight times higher than in white. Obstruction and/or strangulation is extremely uncommon below the age of 3 years. Treatment Conservative treatment is indicated under the age of 2 years when the hernia is symptomless. Parental reassurance is all that is necessary as 95% will resolve spontaneously . If the hernia persists beyond the age of 2 years surgical repair is indicated. Surgery A small, curved incision is made immediately below the umbi licus. The neck of the sac is defined, opened and any contents are returned to the peritoneal cavity . The sac is closed and redundant sac excised. The defect in the linea alba is closed with interrupted sutures of slowly absorbable material. Summary box 64.14 Umbilical hernia in children /uni25CF /uni25CF Umbilical hernia in adults Conditions that cause stretching and thinning of the midline raphe (linea alba), such as pregnancy , obesity and liver disease with cirrhosis and ascites, predispose to reopening of the umbilical defect. In adults, the defect can be not only through the umbilicus but also in the median raphe (linea alba) imme diately adjacent to (most often above) the true umbilicus. The latter are commonly called ‘paraumbilical’ hernias; however, under current guidelines, any hernia in the immediate vicinity of the umbilicus can now be called ‘umbilical’. Small umbilical hernias often contain e xtraperitoneal fat or omentum. Larger hernias can contain small or large bowel. Because the hernia neck is relatively narrow in relation to the size of the sac, they are prone to become irreducible, obstructed and strangulated. Clinical features Umbilical hernias are commonly seen in overweight men with a thinned and attenuated midline raphe or in postpartum women with a weakened abdominal wall. The bulge is typi cally slightly to one side of the umbilical depression, creating a crescent-shaped appearance to the umbilicus (Figure 64.18 Women are a ff ected more than men. Most patients complain of pain due to tissue tension or symptoms of intermittent bow obstruction. In large hernias, the overlying skin may become William James Mayo , 1861–1939, surgeon, the Mayo Clinic, Rochester, MN, USA, described this operation in 1901. He and his brother Mayo (1865–1939) joined their father’s (William Worrall Mayo) private practice in Rochester. This practice became the Mayo Clinic. - very thin; while overlying skin irritation and ulceration may be seen, spontaneous rupture is extremely rare. Treatment As a result of the high risk of strangulation, surgery should be advised in cases where the hernia contains bowel. Small hernias may be left alone if they are asymptomatic, but they may enlarge and require surgery at a later date. Surgery may be performed open or laparoscopically . Open umbilical hernia repair V ery small defects less than 1 /uni00A0 cm in size may be closed with a simple suture repair as long as the fascia is not closed under tension. An alternative technique utilises a darn suture where a non-absorbable, monofilament suture is criss-crossed across the defect and anchored firmly to the

fascia all around. For defects up to 2 /uni00A0 cm in diameter a transverse incision is made and the hernia sac dissected, opened and its contents reduced. The peritoneum is closed. The defect in the linea alba is extended in a transverse direction and the fascial edges are closed in an overlapping style with the superior flap on top (‘waistcoat - over trousers’) (Mayo). Non-absorbable sutures are used and the skin is closed in a routine manner, but redundant skin may need to be excised to achieve a better cosmetic result. The Mayo repair remains popular for defects up to 2 /uni00A0 cm, but the larger the defect the more tissue tension. Current evidence advises the use of mesh even in small defects, and certainly for all defects larger than 2 /uni00A0 cm, owing to the high likelihood of recurrence (Figure 64.19). Special circumstances Women often develop umbilical hernias during pregnancy and may present in the early postpartum period. There is often a degree of rectus divarication. They should be advised to exer - - cise specifically for this condition, lose weight and increase their abdominal muscle tone before operation should be considered). as these may resolve completely within a few months. It is strongly recommended to avoid surgery for umbilical hernia el repair before or during pregnancy . Charles Horace

Common in infants and most resolve spontaneously Rarely strangulate Figure 64.18 A small adult umbilical hernia.

Patients with liver cirrhosis have extremely high mortality and morbidity after primary ventral hernia repair, especially with Child’s B and C disease. Patient selection is very import ant, with appropriate hepatology support if surgery is contem plated. Fascial repair is best done with fine continuous sutures to minimise the risk of post-operative ascites leakage. Laparoscopic umbilical hernia repair A camera port and two working ports are placed laterally on the abdominal wall, well away from the defect. The contents of the hernia are reduced by traction and external pressure. The falciform ligament above and the median umbilical fold below may need to be taken down to create a smooth, firm surface for mesh placement (Figure 64.20). A disc of non-adherent mesh, designed for intraperitoneal use, is introduced and positioned on the undersurface of the abdominal wall, centred on the defect. It is then fixed to the peritoneum and posterior rectus sheaths using staples, tacks or sutures. This is a simple and secure repair, which achieves generous overlap without surgi cal damage to umbilicus and surrounding fascia. However, it requires specialised equipment and expensive tissue-separating mesh and brings with it all the potential problems of intraperi toneal mesh, including bowel adhesion, erosion and fistulation. Intraperitoneal meshes can cause severe pain lasting f or 24–48 hours after surgery , which can mimic peritonitis. The tacks or sutures used to fix the mesh can be a source of chronic or long-lasting pain. Ho wever, this approach is associated with fewer wound complications than open repair and allows large pieces of mesh to be used, so should be considered for obese patients, those with concomitant rectus divarication and those with multiple ventral hernia defects. Emergency repair of umbilical hernia Incarceration, bowel obstruction and strangulation are frequent because of the narrow neck and the fibrous edge of the defect Charles Gardner Child , 1908–1991, Chair of the Departments of Surgery at Cornell University , Ithaca, NY (1947–1953), Tufts University , Boston, MA (1953–1974), and the University of Michigan, Ann Arbor, MI (1978–1983), USA. in the midline raphe. Delay to surgery can lead to gangrene of the omentum or bowel. Large hernias are often multiloculated - and there may be strangulated bowel in one component when - other areas are clinically soft and a non-tender hernia. Multi - loculated hernias are however more common as incisional then primary ventral. Most emergency repairs are performed by open surgery . In the presence of established strangula tion mesh should be avoided

as the risk of infection is too high; the focus of the operation should be to deal with the strangulated tissue, so a suture repair is advised with a more definite repair to be performed at a later date if necessary .

Figure 64.19 A massive umbilical hernia, intraoperative view. Figure 64.20 Umbilical defect: laparoscopic view, before the bulky falciform ligament has been taken down to create a smoother surface for mesh placement.

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