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Congenital Diaphragmatic Hernia: Permacol

When the defect of congenital diaphragmatic hernia (CDH) is too large to be closed primarily, a synthetic patch must be used. This can occur with defects larger than 50% or total agenesis of the hemidiaphragm. The most common problem after mesh/patch repair of CDH is the high incidence of recurrence due to poor tissue incorporation and growth accommodation. Collagen-based bioprosthetic patches when compared with synthetic materials demonstrate better integration with tissue and less inflammatory response. Permacol is a sheet of collagen derived from porcine dermis producing chemical cross-linking, making it more resistance to collagenase degradation while retaining good tissue integration due to the reduced inflammatory response. The cross linking of lysine and hydroxylysine residues within the collagen fibers of Permacol imparts a higher resistance to collagenase improving durability. Permacol becomes incorporated by tissue ingrowth and neovascularization. Permacol has been utilized in the adult population for difficult abdominal wall closure in the presence of contamination, fistula or abdominal compartment syndrome. It has also been used in the patch repair of ileoanal pouch-vaginal fistulas. Permacol appears to be a safe, durable alternative to synthetic patches in the closure of large CDH defects.

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PET/CT: Pediatric Abdominal Tumors

Managing children with malignancies is costly but very rewarding experience. Positron emission tomography (PET) utilizes F-18 fluorodeoxyglucose (FDG), a glucose analogue, that concentrates in areas of active metabolic activities as the main radiopharmaceutical to create a PET functional image. The FDG avidity has been demonstrated in all abdominal tumors making it a very sensitive diagnostic modality. Combined with a CT Scan advantage of precise anatomical detail in evaluation of pediatric solid tumors, the PET-CT allows a combination of functional assessment along with fine anatomical details. The

PED/CT has a sensitivity above 90%. The advantages of using a PET/CT Scan in children with pediatric abdominal tumor malignancies include: 1) useful in preoperative staging of the tumor and selection of appropriate site for biopsy, 2) useful identifying occult or unsuspected local or distant metastasis, 3) useful for follow-up of recurrent or residual disease, especially lymphoma, 4) provides assessment of response to adjuvant chemotherapy, and 5) valuable where standard diagnostic studies are equivocal or conflicting. The CT role in PET/CT is noticed when normal FDG avidity tissues such as adenoids, thymus, thyroid, bone marrow, growth plate, brain, myocardium, renal pelvis and bladder are evaluated. Reactive lymphadenopathy and postop inflammation can cause false positive studies. Irrespective of cost we need to incorporate the PET/CT into our diagnostic armamentarium with dealing with pediatric malignancies.

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Posttransplant Lymphoproliferative Disease

With the increased advent of organ transplantation and immunosuppression in children, a serious complication with a high morbidity and mortality has raised, namely posttransplant lymphoproliferative disease (PTLD). PTLD occurs due to abnormal lymphoid proliferation from ineffective B-cell or T-cell function in immunosupressed patients after solid organ transplantation. Most cases of PTLD are associated with Epstein-Barr virus (EBV) infection. Less likely cytomegalovirus and herpes might be involved. Incidence of developing PTLD is low for renal transplants and higher for lung transplants. Transplant children are more commonly affected than their adult counterpart. PTLD arises where lymphoid tissue is present, mostly affecting head (adenoids), neck, mediastinum and abdomen. Children present with fever, weight loss, lethargy, abdominal pain, nausea, anorexia, diarrhea and GI bleeding. Biopsy of enlarged lymph nodes, endoscopy or CT-Scan establishes the diagnosis of PTLD. Primary EBV infection with high viral load after transplantation is a known risk factor for PTLD. PTLD risk factors include recipient pretransplant EBV negative serostatus, type of transplant, intensity of immunosuppression, and age. Management of PTLD involves medical reduction in immunosuppression, radiation, chemotherapy, alfa-interferon, and use of monoclonal antibodies (Rituximab). Mortality is much higher in children with abdominal PTLD than those with extraabdominal disease.

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