



PEDIATRIC SURGERY Update 8

Vol. 32 No. 02 FEBRUARY 2009

Radioiodine Therapy for Thyroid Cancer

The thyroid gland is very efficient in trapping iodine. Radioiodine therapy in the form of Iodine-131 is utilized in the adjunctive management of well-differentiated thyroid malignancy such as papillary and follicular carcinoma. Radioiodine therapy (RxT) is used to (1) ablate residual normal thyroid tissue after subtotal thyroidectomy or lobectomy, and (2) manage functioning metastases from thyroid cancer. Metastases can occur to the regional nodes, lung, bone and liver. After total thyroidectomy, plasma thyroglobulin is the most useful marker for monitoring tumor progression. Residual thyroid ablation can occur with a single dose of I-131. In the setting of metastatic disease RxT is most effective 6-8 weeks after total thyroidectomy when the TSH is above 35 mIU/mL and the thyroid tissue within the metastatic foci is very avid in taking iodine. Dosimetry studies are done to determine the safe maximal dose of iodine-131 to be administered to the child. Depending on the site of metastasis (lymph nodes, lung or bone) will depend the quantity of radiotracer to be given (approximately 150-175, 175-200, or 200 mCi respectively). Side effects of RxT takes years to develop. After therapy the child can have nausea, emesis, transitory & reversible thrombocytopenia and sialadenitis. Development of second tumors is very rare. I-131 may cause impairment of testicular function. There is no evidence that exposure to radioiodine affects the outcomes of subsequent pregnancies and offspring. Long term prognosis is excellent.

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Congenital Megalourethra

Congenital megalourethra is a very condition analogous to the extreme form of urethral diverticulum. The megalourethra is a non-obstructive dilatation which occurs secondary to a partial or complete agenesis of spongy and erectile tissue. Three types are recognized: 1) localized absence of corpus spongiosum in the penile urethra predisposing to saccular diverticulum formation, 2) scaphoid megalourethra which is associated with a greater deformity and deficiency of erectile tissue, and 3) the fusiform type which is a severe deficiency of erectile tissue with almost complete absence of corpus spongiosum and corpora cavernosa. Embryologically, megalourethra occurs due to a failure of the mesodermal urethral folds and mesenchyme to differentiate adequately or completely into erectile tissue. Due to lack of adequate support the urethra balloons. Diagnosis is made upon inspection. Multiple other anomalies might be present such as imperforate anus, cryptorchidism, renal agenesis and aberrant adrenal tissue. Hydroureteronephrosis, megacystis and proximal urethral dilation may be demonstrable on urographic studies. Management consists of surgical reduction of the redundant dilated ventral urethra for the scaphoid variety (Nesbitt urethroplasty). Preliminary urinary diversion followed by planned staged reconstruction is necessary for the more dreadful fusiform type.

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Amyand's Hernia

Amyand's hernia refers to a very rare hernia where an incarcerated or perforated appendix is found in the right inguinal canal. It is estimated to occur in 0.1% of all cases of appendicitis. Clinically the child presents with a tender, nonreducible inguinal or inguinal-scrotal lump, more commonly in the right canal than the left often imitating an incarcerated or strangulated inguinal hernia. Symptoms may also mimic inguinal lymphadenitis, epididymis-orchitis, hydrocele of the spermatic cord and testicular torsion. Due to the unusual presentation the diagnosis is rarely made before surgery. Children complain of crampy low abdominal pain combined with irreducible tender mass in the inguinal region. Neonates can develop associated testicular ischemia. It is believed the appendix enters

into the hernia sac and its blood supply is compromised resulting in inflammation. CT and US can be helpful in providing a preoperative diagnosis. Management consists of repair of the hernia defect along with appendectomy. Laparoscopy can assist the surgeon during the appendectomy. Incidental appendicectomy in the case of a normal appendix is not favored.

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8 PSU 1993-2009
ISSN 1089-7739