

referrals to the general surgeon. Almost all male infants born in the hospital undergo circumcision in the first few days of life. Earlobe piercing, though not mandatory, is performed as a cosmetic procedure on the majority of infant girls. With approximately 2500 live births each year at the hospital, referrals for these 2 indications constitute a major portion of referrals to general surgery.

**Ophthalmology.** Among the subspecialties, ophthalmology accounts for 17.3% of referrals made during the period. Most referrals are made for refractive errors and visual impairment. A study is under progress in the department to assess the prevalence of visual impairment among school children due to refractive errors. This study may explain the reason for the high referral rate to this specialty.

**Obstetrics and gynecology.** The high referral rate for obstetrics and gynecology reflects the prevailing policy of the hospital that does not permit the family physicians to initiate oral contraception or to insert intrauterine contraceptive device (IUCD). Consequently, the majority of referrals to this specialty are requests for insertion of IUCD or for initiation of oral contraception. Training the physicians of the department in the insertion of IUCD and permitting them to initiate prescription of oral contraceptives would reduce the percentage of referrals to this specialty.

**Psychiatry.** A referral rate to the psychiatrist of approximately 6-7% is mentioned in the literature. The low referral rate of 2.2% for this specialty is unlikely to reflect the lower incidence of psychiatric disease in the population of the city. The traditional beliefs of the local population, together with the practice style of the physicians of the department are more likely to be the cause for this lower rate of referrals for mental illness.

**Cardiology.** The referral rate to the cardiologist at 0.9% is significantly lower than that determined by Bertakis et al<sup>1</sup> (6.2%). Only clear cut cases of cardiology such as patients with valvular heart disease or those in heart failure are referred directly to the cardiologist. Other less well defined cases, including cases of hypertension, who constitute a significant portion of referrals, are referred initially to the general internist. This accounts for the discrepancy in the referral rate for this specialty in the 2 studies.

In conclusion, the pattern of referrals from primary care physicians to the specialty clinics has a significant impact on the cost and quality of health care delivery. Worldwide, approximately 4.5% of patient visits to the primary care clinic are referred to the specialists.<sup>3</sup> The referral rate in the present study, however, is significantly lower. The rate varies from a high of 4.9% in July 2002 to a low of 2.3% in January 2003, with an average of 3.6% for the period of 7-months. This is mainly attributable

to the efficient clinical audit undertaken during the period of the study.

Referrals to individual specialties follow the pattern seen in other studies with 5 significant exceptions. Referrals to general surgery, ophthalmology and obstetrics and gynecology were found to be significantly higher and referrals to cardiology and psychiatry were found to be lower than in the study by Bertakis et al.<sup>1</sup>

The large number of referrals for simple procedures such as circumcision and earlobe piercing for infants account for high referral rates to general surgery. Similarly, higher referral rate for obstetrics and gynecology is attributable to the referrals required for simple procedures which can be performed at primary care level, but have to be referred in accordance with the hospital policy.

The higher referral rate for ophthalmology may be attributed to a higher prevalence of refractive errors in the local population, though this has to be established in a separate study.

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## Branchial remnants: A review of 15 cases

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**B**ranchial remnants including sinuses, cysts, fistulas and cartilaginous rests are relatively rare lesions that can occur in the head and neck of infants and young children. This is a review of our experience in the management of 15 children with branchial remnants. The medical charts of all patients with the diagnosis of branchial remnants were retrospectively reviewed for age at presentation, sex, and mode of presentation, operative findings, pre and post operative



**Figure 1** - Clinical photograph showing a right sided branchial cyst.



**Figure 2** - Clinical photograph showing a right sided branchial fistula.

complications and histological features. Over a period of 10-years, 15 children (10 F: 5 M) with a mean age of 2.8 years (5-months-15-years) were treated for branchial remnants. Four had branchial cysts, 3 had neck swellings composed of cartilaginous remnants; one had acute suppurative thyroiditis, while the remaining 7 had discharging sinuses in the neck. One of them had bilateral lesions, while another presented with a recurrent discharging sinus. All were operated on and the lesions were excised totally via one incision except one who required a stepladder incision. The operative findings were classified as follows: one had first branchial cleft remnant, one had third branchial cleft remnant, and 13 had second branchial remnants. Histologically, 3 had cartilaginous tissue, in one there was no epithelial lining, in 5 the lining was respiratory epithelium, one had respiratory as well as squamous epithelial lining, in one case the lining was ciliated columnar epithelium, one had stratified squamous epithelium, and 2 had squamous epithelium. There was no metaplasia or evidence of malignant transformation. There was no mortality or morbidity and no recurrence. Branchial remnants are relatively rare lesions, which can present in a variety of ways depending on the origin of the cleft. Physicians caring for these patients should be aware of such presentation, and since these lesions are known to be complicated by infection, early referral of these patients for pediatric surgeons and surgery at an early convenient time is recommended.

A wide varieties of embryonic branchial remnants including sinuses, cysts, fistulas and cartilaginous rests can occur in the head and neck region of infants and young children.<sup>1,2</sup> Second branchial remnants are by far the most frequent, while those arising from the first or third branchial clefts are considered very rare.<sup>3-5</sup> This is a review of our experience in the management of 15 children with branchial remnants. The operative findings and histological features were obtained from the operative notes and histopathological report. The diagnosis of the origin of the branchial cleft remnant, whether of first, second or third branchial origin was based on the site as well as the course of the tract. The frequently encountered preauricular cysts and sinuses as well as skin tags with or without cartilaginous remnants, around the ear were not included in this study. Over a 10-year period from August 1998 through to July 2000, 15 children with the diagnosis of branchial cleft remnants were treated at our hospital. There were 10 females and 5 males (F: M ratio of 2:1). Their ages at the time of presentation ranged from 5-months –15-years (mean 2.8 years). Four presented with cystic swellings, 3 had neck swellings composed of cartilaginous remnants, one presented with acute suppurative thyroiditis while the remaining 7 had discharging sinuses in the neck. Two patients presented with bilateral lesions, one of them had bilateral discharging sinuses, while the other had bilateral cartilaginous remnants. One patient was referred to

our hospital with a recurrent discharging sinus in the lower third of the neck on the left side, which was excised in another hospital. All our patients were operated on and based on the clinical and operative findings, they were classified as follows: one had first branchial cleft cyst, another had third branchial cleft fistula, and 13 had second branchial cleft remnants. First, branchial cleft cyst: A 15-year-old girl presented with right sided neck swelling of several months duration. Clinically, she was found to have a cystic swelling, 6 x 5 cm in size, located posterior to the ear and inferior to the ear lobe. This was aspirated in another hospital and found to have cholesterol crystals. The cyst was excised and intra operatively it was found infected. There was no evidence of a fistula tract. Histological examination revealed a cyst lined by stratified squamous epithelium, and the wall composed of lymphoid tissue with follicle formation. Second branchial cleft remnants: 13 patients had second branchial remnants. Three presented with cervical cystic swellings, 2 on the right and one on the left side. Their ages were 2, 5 and 13-years at the time of presentation. In all the swelling was located at the junction of the upper and middle third of the anterior border of the sternomastoid muscle (**Figure 1**). Histology of the resected cysts revealed a cyst wall composed of heavy lymphoid tissue with lymphoid follicles and lined by squamous epithelium in 2 and ciliated columnar epithelium in the third. One patient, a 3.5-year-old female presented with bilateral firm neck swellings since birth. The swelling on the right side was along the anterior border of the sternomastoid muscle at the junction of the upper two-thirds and lower third, while the one on the left side was located around the middle of the anterior border of the sternomastoid muscle. Both swellings were excised and revealed cartilaginous tissue surrounded by fibro fatty tissue. Another patient presented at the age of 5-months with left sided neck swelling since birth. She was found to have 2 swellings around the middle of the anterior border of the sternomastoid muscle. Both swellings, one superficial and another deep and attached to the sternomastoid muscle were excised and histology revealed cartilaginous remnants. The remaining 7 patients presented with discharging sinuses in the neck. Four had right-sided lesions, 2 had left sided lesions and one had bilateral lesions (**Figure 2**). All had recurrent discharge from the openings since birth. One of them was referred to our hospital with a recurrent sinus after previous excision in another hospital. Four patients had branchial fistulas, 2 had branchial sinuses, and the one with bilateral lesions had a fistula on the right side and a sinus on the left side. All lesions were excised totally via one incision encircling the opening except one that required a stepladder incision to achieve complete excision. The

epithelial lining was respiratory in 4, and one had both respiratory as well as squamous epithelium. There was no epithelial lining in one of the sinuses, while another had respiratory epithelium. Postoperatively, all patients did well with no evidence of recurrence on follow up ranging from 6-months-6-years (mean 2.4 years). Third branchial cleft remnants:<sup>4</sup> An 8-year-old girl presented with 7 days history of left sided neck swelling associated with fever and difficulty in swallowing. She was found to have left sided suppurative thyroiditis with abscess formation. This was incised and drained, and the culture grew *Streptococcus milleri*. The patient was treated with intravenous crystalline penicillin. She did well and was discharged home in a good general condition. On follow up 4-weeks later, barium swallow was carried out. This revealed a well-defined fistula tract extending from the apex of the pyriform sinus for 3.5 cm and ending blindly in a small pouch. The patient was followed up for more than 2-years with no recurrence. The family was advised surgery to excise the fistula, but they wanted to wait.

Embryologically in the 2.5 mm embryo and around the fourth gestational week, 4 branchial arches appear on each side of the embryonic head and neck, which are separated externally by 3 branchial clefts. The development of these pharyngeal arches, and their derivatives contribute to the formation of the face and neck.<sup>5</sup> Failure of obliteration of part or all of one of these structures will ultimately lead to a variety of branchial remnants which can manifest either as a sinus, fistula, cyst or cartilaginous rests or rarely as suppurative thyroiditis in those with third branchial remnants.<sup>1,2</sup> It is well known that these lesions may become infected which makes their surgical removal more difficult and also increases the risk of recurrence. To obviate this, it is essential that physicians caring for these patients should be aware of such complications. This also calls for early referral of these patients to pediatric surgeons for further evaluation and management. Surgery at an early convenient time is recommended in these cases. Branchial remnants are relatively rare, and second branchial cleft remnants are by far the most frequent. Anomalies derived from the first cleft are very rare, and those arising from the third branchial cleft are extremely rare.<sup>1-4</sup> Over a period of 12 years, Al-Arfaj<sup>6</sup> reported only 12 patients with branchial remnants all were arising from the second branchial cleft. A 13-year review of 58 patients with branchial remnants from the Royal Children's Hospital of Melbourne showed 8 to be arisen from the first branchial remnants, 49 from the second branchial remnants, and only one was considered to be third branchial in origin.<sup>1</sup> Over a period of 10-years, we treated 15 children with branchial remnants, 13 of them were of second branchial remnants and one

each of first and third branchial remnants. Branchial sinuses, fistulas, and cartilaginous remnants are usually present at birth, while cysts become apparent later in childhood or early adulthood when they fill with secretions and produce a cystic swelling in the neck. Clinically, second branchial cleft sinuses and fistulas are found along the anterior border of the sternomastoid muscle between its middle and lower third, whereas second branchial cysts are found in the upper third of the neck along the anterior border of the sternomastoid muscle. First, branchial cleft cysts mainly present as a swelling posterior or anterior to the ear or in the submandibular region inferior to the ear lobe, and those with a sinus or a fistula, the external opening is located inferior to the mandible in a suprahyoid position. Approximately a third however have an opening in the bony or cartilaginous portion of the external auditory canal. Third branchial cleft remnants are extremely rare and have seldom been reported. A fistula tract that is leading to or in proximity to the pyriform sinus is considered to be of third branchial pouch origin, and although initially was described as a cause of recurrent suppurative thyroiditis, it has also been recognized as a cause of cysts and abscess formation.<sup>2,3</sup> The importance of this needs to be emphasized, and a fistula tract from a third branchial remnant must always be considered in those with suppurative thyroiditis specially those on the left side. The reason for this exclusively left sided occurrence is not known. The treatment of those who present with suppurative thyroiditis should be with antibiotics, incision, and drainage. Once the infection subsided, the fistula can be delineated with barium swallow.<sup>4</sup> To obviate recurrence, surgical excision should be advocated, and to facilitate dissection of the fistula intraoperatively, the fistula can sometimes be cannulated endoscopically.

The majority of these lesions (90%) are lined by squamous epithelium and 10% are lined by ciliated epithelium.<sup>1</sup> Cholesterol crystals may be seen when the fluid is aspirated from branchial cysts as in one of our patients. Lymphoid tissue with or without germinal centers is typically seen beneath the lining epithelium. Extremely rare, squamous cell carcinoma or branchiogenic carcinoma can develop in neglected cases.<sup>7</sup>

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## Professionalism: Are we doing enough?

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**P**rofiteri is the Latin word of English Profession. Around the 16th century the meaning of the word profession included the occupation of physicians, priest, and lawyers.<sup>1</sup> In the present day practice of medicine, it appears that medical professionals have forgotten the word of Sir William Osler<sup>2</sup> who said in 1932 that "the practice of medicine is an art, not a trade; not a business, a calling which your heart will be exercised equally with your head". The fundamentals and practice of professionalism, ethics and morals have long been available in the Islamic law and literature but presently these teachings are left on the bookshelves for decoration. The essential values to practice medicine, honesty and integrity has become a rare commodity. Fraudulent claims by the unprofessional physicians caused a loss of \$66 billion a year for health care programs in the United States of America (USA) alone.<sup>3</sup> Unfortunately, unprofessionalism is creeping in along with the westernization of our society as well. It is an open secret that physicians spend barely the required time at the hospitals they are supposed to work full time, more interest in their private practice, refer patients from the government to private hospitals under various pretexts. The long waiting lists in the government institutions are helping these physicians in their unprofessional endeavors. It appears that situation in private sector is worse; competition not only among different hospitals but between physicians of the same hospitals, commission on the final hospital bills is making doctors to practice medicine for their benefit, rather the suffering patients. The million riyal question is "are we doing enough to improve the professionalism among the doctors of today and tomorrow?" Stern<sup>4</sup> believed that values like honesty, accountability and caring are rarely taught in the internship and residency