Case Report

Newborn with tail - A genetic throwback

R Kansal, *N Agrawal, **S Khare, ***A Khare, **S Jain , *B M Singhal

Department of Obstetrics & Gynocology, *General Surgery, **Anatomy and ***Pathology, Subharti Medical College, Meerut - 252002

Abstract:

The birth of a child with a caudal appendage resembling a tail generates an unusual interest and anxiety . True human tail is a rare event; less than 40 cases have been reported in the literature so far. It is defined as a caudal, vestigial, midline protrusion of muscle and adipose tissue with skin covering . We are reporting a case of true tail in a baby, a rare event in human.

Key Words: Human tail, Genetic throwbacks

Introduction:

"Genetic storage is a nuance of evolution too often ignored. Many paleontologists believe that when a bone disappears in evolution, the genetic blueprint for that bone is also erased. But in fact evolution does not occur in this fashion. Recent advances in genetic research reveal that most species carry such blueprints that are "switched off" and can't express their code as fully formed tissue. In other words, when an organ has been "lost," most of the time its blueprint is still there in genetic storage. A wealth of evidence supports this theory of re-expression by genes that have been turned off for millions of years. Most of it occurs in throwbacks, the rare appearance of ancient organs in species that, as a whole, had lost the anatomical features millions of generations earlier (Bakker, 1986).

CaseReport:

A 25 years old $G_5P_{3+1}L_3$ female with nine months amenorrhea with severe oligohydrominos was admitted to the hospital with complaint of pain in abdomen off & on. There was no history of any per vaginal leaking, diabetes mellitus or drug exposure during pregnancy. Her examination revealed fundal height of 32 weeks with clinically evident features of oligohydrominos. Her systemic examination & investigations were within normal limit. Ultrasonography revealed a single live intrauterine fetus of 36 weeks with severe oligohydrominos (Amniotic fluid index - 4) with lumbosacral meningocele. The labour was induced with misoprostol (25 µgm every 3 hourly). A 2.0 kg male baby was delivered at our hospital with apgar score of 7 and 8 at 1 and 5 minutes respectively. The general and systemic examination of neonate was normal except for meningocele in lumbosacral area and a soft tail like tissue mass just below it. Possibility of true neonatal tail versus pseudotail was considered. The neonate did not have any other congenital anomaly. There was no family history of any developmental or congenital anomaly. The soft tissue mass in the sacro-coccygeal region was tail like, soft, well circumscribed, measuring 10 cm in length and 0.5 cm thick Radiography and ultrasonography of spine showed spina bifida at the lumbosacral area.

Patient was shifted to neonatal intensive care unit and planned surgery was undertaken by the neurosurgeon. Tail was removed and sent for histopathological examination and meningocele defect was repaired. Histopathology revealed that tail like structure contained skin, muscle and adipose tissue only Presently baby is one month old, accepting breast feeds and is weighing 2kg with no neurological deficit in lower limbs.

Fig. I: Showing the Neonate with tail and lumbosacral meningocele

Corresponding Author: Dr. Nivesh Agrawal, Associate Professor Department of General Surgery, Subharti Medical College, Meerut-252002

Phone No.: 09837037159

E-mail : dr_niveshagrawal@yahoo.co.in

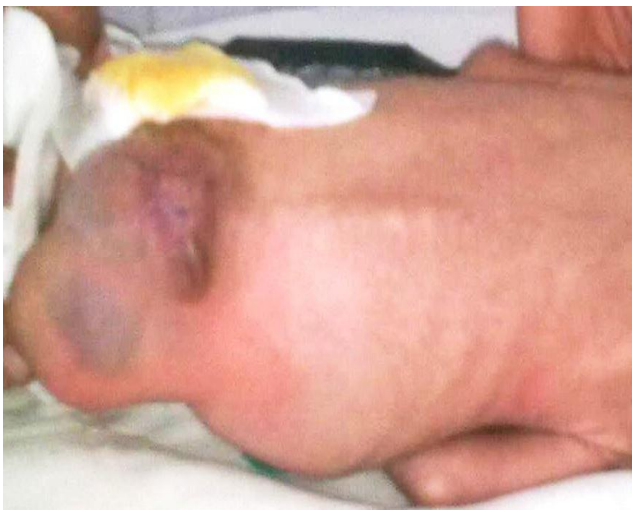

Fig. II: Photograph showing 1 month old infant (post -operative)

Discussion:

Human embryos have a tail that measures about one-sixth of the size of the embryo itself (Ledley, 1982). The embryonic human tail is composed of several complex tissues besides the articulating vertebrae including a secondary neural tube (spinal cord), a notochord, mesenchyme and tail gut. It is endowed with voluntary muscles in the core, blood vessels, nerve fibers, nerve ganglion cells and specialized pressure-sensing nerve organs. The tail is covered by normal skin, replete with hair follicles, sweat and sebaceous glands. By the eighth week of gestation, the sixth to twelfth vertebrae are completely eaten up by white blood cells with shrinking of the fourth and fifth vertebrae, and all that remains is the bone that is our fused coccyx, buried underneath the skin. Coccyx does not protrude externally, but retains an anatomical purpose of providing an attachment for muscles like the gluteus maximus.

The developmental tail is thus a human vestigial structure (Alashari & Torakawa, 1995; Dao & Netsky, 1984). Infrequently, a child is born with a "soft tail", which contains no vertebrae, but only blood vessels, muscles and nerves. There are very few documented cases of tail containing cartilage or up to five vertebrae. Modern procedures allow doctors to eliminate the tail within short period after birth. Some of these tails may in fact be sacrococcygeal teratomas. The longest human tail on record belonged to a twelve-year-old boy living in what was then French Indochina, which measured 229 mm. A man named Chandre Oram, who lives in West Bengal, is famous because of his 330 mm long tail (Kabra et al, 1999).

Caudal appendages are unusual malformations and are divided into true tails and pseudotails (lipoma, teratoma, myelomeningocoele and parasitic fetus). Simple surgical excision of true tail has been advocated (Spiegelmann et al, 1985). However, recent reports emphasize the associated midline anomalies that might change the surgical approach in these patients (Ohhara, 1980; Belzberg et al, 1991; Matsumoto et al, 1994). It is important to make distinction between true and pseudotail in lumbosacaral region since the treatment and prognosis are different.

In contrast to vertebrate animals, a true tail in human is vestigial and never contains vertebrae. It has been suggested that true tail is a dermal appendage coincidentally located in the sacrococcygeal region and can be located 1.5 cm to one side of the midline. Though anomaly occurs in both sexes, a slight predominance in males is known and it affects all races (Parsons, 1960). Familial cases have been reported (Dao & Netsky, 1984). In 29% of cases caudal appendages are reported to be associated with other congenital anomalies (Durbow et al, 1988). Spina bifida is the most frequent coexisting anomaly. Cleft palate was reported once (Lundberg & Parsons, 1962). Spinal dysraphism should be excluded in all patients with caudal appendages prior to excision since neurosurgical intervention may be required (Belzberg et al, 1991; Matsumoto et al, 1994). A thorough neurological examination and imaging studies of the vertebral column are recommended to exclude this possibility (Kabra et al, 1999). Our patient had lumbosacral meningocele. Several previous reports documented movement and contraction of tail (Dao & Netsky, 1984), whereas other reports indicated lack of movement of the tail (Alashari & Torakawa, 1995). In the present case no movement and contraction of tail was observed.

Microscopic examination of all true human tail showed skin covering a core of adipose tissue, collagen fibers and skeletal muscle fibers. No bone or cartilage has been documented. An associated lipoma (Belzberg et al, 1991), lipomeningocele (Belzberg et al, 1991; Matsumoto et al, 1994), capillary hemangioma (Parsons, 1960), or juvenile hemangioendothelioma (Lundberg & Parsons, 1962), well developed neurones, glial fibers and calcification have been reported (Belzberg et al, 1991).

After excluding associated spinal deformities, surgical removal is the treatment of choice. A thorough histopathological examination of the mass is

recommended to exclude teratomatous growth or other neoplasms (Alashari & Torakawa, 1995).

Bibliography:

1. Alashari M, Torakawa J: True tail in a new- born. *Pediatric Dermatology*, 1995; 12(3): 263-266.
2. Bakker RT: The Dinosaur Heresies.William Morrow & Company in New York, 1986; pp.314-316.
3. Belzberg AJ, Myles ST, Trevenen CL: The human tail and spinal dysraphism. *Journal of Pediatric Surgery*, 1991; 26(10): 1243-1245.
4. Dao AH,Netsky MG: Human tails and pseudotails. *Human Pathology*, 1984; 15(5): 449-453.
5. Durbow TJ, Wackyn PA, Leasavoy MA: Detailing the human tail. *Annals of Plastic Surgery*, 1988; 20(4): 340-344.
6. Kabra NS, Srinivasan G, Udani RH: True Tail in a Neonate. *Indian Pediatrics*, 1999; 36:712-713.
7. Ledley FD: Evolution and the human tail. *The New England Journal of Medicine*,1982; 306(20): 1212-1215.
8. Lundberg GD, Parsons RW: A case of human tail. *American Journal of Diseases of Child*, 1962; 104: 72-73.
9. Matsumoto S. Yamamoto Y, Okura K: Human tail associated with lipomeningocele: A Case report. *Neurologia Medico-Chirurgica* (Tokyo), 1994; 34(1): 44-47.
10. Ohhara Y: Human tail and other abnormalities of the lumbosacrococcygeal region relating to tethered cord syndrome. *Annals of Plastic Surgery*, 1980; 4(6): 507-510.
11. Parsons RW: Human tails. *Plastic Reconstructive Surgery*,1960; 25(6): 618-621.
12. Spiegelmann R. Schinder E, Mintz M, Blaksein A: The human tail: A benign stigma-A Case report. *Journal of Neurosurgery*, 1985; 63(3): 461-462.