MEDICAL GENETICS

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Supernumerary nipples: prevalence, size, sex and side predilection - a prospective clinical study

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Abstract The purpose of the following clinical study was to determine the prevalence, size, sex and side predilection of supernumerary nipples. Out of 502 patients, 28 (5.6%) exhibited a supernumerary nipple of small (only areola with diameter less than 30% of normal areola) or middle size (areola with nipple, diameter 30%–50% of normal areola). The male/female ratio was 20/8 and left/right side ratio 15/7 in males and 5/4 in females.

Conclusion A supernumerary areola or a supernumerary areola with nipple is a frequent finding. There is a higher prevalence for the left side and male gender.

Key words Supernumerary nipple · Prevalence · Side · Size · Sex

Introduction

Atavism, the spontaneous reappearance of ancestral characteristics in individual members of a species, serves to remind us that the genetic and developmental information originally used in the production of such characteristics has not been lost during evolution but lies quiescent within the genome and in the process of embryonic development. The most well-known examples of atavism in natural populations are hind limbs in the whale and extra toes in the horse. Another example is the appearance of extra nipples in humans and other primates. Mammary glands develop from a pair of mammary ridges extending along the body wall but only two mammary glands develop [7]. In primates excess mammary buds can develop along the ridge. These extra nipples that can appear in both men and women are signs that an atavistic structure has developed. The developmental mechanism for the reappearance of ancestral structures causes prolonged growth of an element that normally remains rudimentary because it fails to maintain its early growth rate. With the advent of techniques for production of transgenic animals, atavistic features have been evoked by over- or underexpression of individual genes, especially the Hox genes [3]. Ectopic expression of many Hox genes changes spatial information and is associated with the development of structures out of place and time, makes Hox genes and mutations in these prime candidates as engines powering the production of atavism. It has been suggested that patients with supernumerary nipples have a higher incidence of urinary tract malformations [1, 2, 4, 9, 10, 11].

The aim of this clinical study was to determine the prevalence, size, sex and side predilection of supernumerary nipples in children.

Patients and methods

Patients

In the Outpatient Department of the University Children's Hospital Munich, 502 (259 males, 243 females) Caucasian infants and children presented for routine diagnosis (age: 2 months–16 years). None of the patients had a history of urinary tract infections or suspected urinary tract malformation. Ultrasonography of the urinary tract was not performed. No other malformations could be detected by physical examination. All
these patients were seen within 70 days of normal routine work by the same physician.

Criteria

The anterior chest, subaxillary region and abdominal wall were inspected. Using a magnifying glass (x10 amplification) every discrete change in skin texture and colour along the mammary ridges was noted. If the area exhibited a variable texture in comparison with the surrounding skin and was not greater than the normal areola, a supernumerary areola or areola with nipple was suspected. The area was folded with two fingers resulting in a characteristic crease (Fig. 1.). Scars were excluded. The following size classification was applied:

(a) small: areola without nipple, diameter less than 30% of normal areola,
(b) middle: areola with nipple, diameter 30%–50% of normal areola (Fig. 2.),
(c) normal: areola with nipple, diameter 50%–100% of normal areola.

Parents were questioned but not examined as to the presence of a supernumerary nipple.

Results

Out of 502 patients, 28 (5.6%) exhibited a supernumerary nipple. All were within the chest region. The supernumerary nipples were classified as (a) small in 21 (75%) patients, (b) middle in 7 (25%) patients and (c) normal in none. Of male patients, 20 (7.7%) and eight females (3.2%) exhibited a supernumerary nipple. In male patients the left/right side ratio was 15/7 (bilaterally in one case), and 5/4 in females.

In 40% of all patients found, one of the parents confirmed the presence of a supernumerary nipple.

Discussion

The term “supernumerary nipple” is in fact confusing. Not every supernumerary areola has a nipple, but every supernumerary nipple has an areola. The term “poly-