SURGICAL TREATMENT OF GIANT ACQUIRED DEFORMITIES OF EXTERNAL GENITALIA.

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Summary: this topic presents two rare acquired deformities of male and female genitalia requiring surgical treatment (excision and reconstruction); concerning female genitalia, the so called Buschke-Lowenstein giant condyloma is one the cases which will be detailed below. The other case is a giant peno-scrotal lymphoedema; both cases have been treated by the same author, in the Plastic Surgery Department of Targu Mures, Romania.
- **Introduction**: acquired giant deformities involving male and female genitalia are seldom seen, and are usually produced by some common causes such as:
  - benign and malign extensive tumors which lead to a permanent modification of the external genitalia;
  - infections (viral, parasitic, microbial and fungal diseases);
  - trauma such as extensive full-thickness burns and electrical injuries, traumatic avulsions, etc.

- This topic deals only with those giant deformities of both male and female external genitalia, which required complex surgical treatment that has been performed by a plastic surgery team, well trained in reconstructive surgery (less extensive deformities of external genitalia which do not require reconstructive procedures, are usually treated in the Gynecology, Urology and Dermatology Departments). Further will be detailed two significant cases with acquired giant deformities of male and female external genitalia.
Materials and methods:

A. Giant venereal condyloma: sexual transmission of this disease is known from very old times but since the beginning of the last century, genital warts have been considered as a manifestation of syphilis and gonorrhea. In the first decade of the XX-th Century, the link between verrucae and warts has been recognized and genital warts have been described as condyloma acuminatum. Infectious and viral nature of warts has been demonstrated by Ciuffo in 1907 who has self-inoculated an acellular extract of warts thus reproducing the lesion. In 1925, Buschke and Lowenstein described the first case with giant venereal condyloma (the disease is still named after the two authors), and zur Hansen established in 1970, the first link between warts and the epitheliomatous tumors. Today is well known that all wart lesions have a viral origin from the almost 130 viral types of HPV – Human Papilloma Viruses, which all belong to the great family of Papovaviruses. The most frequent types of HPV involved in the etiology of giant venereal condyloma are 6, 11, 57, 72 and 73. Genital warts are the first sexually transmitted disease in the world, equally for both sexes (with a slight prevalence in men), having the highest incidence in the age between 17 and 33. According to WHO data, about 7% of the world population have or had a genital warts infection, so this lesion is 2.5 times more frequent than the genital herpes (which is now only the second sexually transmitted disease). There are important serological differences among viral types producing the genital warts, with precise geographical distribution, so there are described different virus groups for Europe, Africa, Asia and America.

The first part this paper describes the case of a 45-year-old patient with giant venereal condyloma of Buscheke and Lowenstein; the huge vegetant lesions appeared and developed in the last two years.
Fig. 1: Initial aspect before surgery; huge vegetations invade the external genitalia especially on the right aspect, as well as the posterior wall of the vagina, the perineum and the anal and perianal region.
Fig. 2: Under spinal anesthesia using a vial of 4ml of 0.5% bupivacaine, a very large excision of the whole tumor has been performed, followed by progressive reconstruction of genital structures, “strengthening” the posterior vaginal wall by double layer sutures (in order to avoid recto-vaginal fistulisation which can appear in such cases).
Fig. 3: One can see that all anatomical structures of external genitalia have normal aspect and dimensions; this fact was very important for the patient, who intended to have a new normal sexual life.
Fig. 4: follow-up at 48 hours after surgery shows a significant decrease of the post-operative edema (which could be seen in the 2 previous images), external genital organs have a normal aspect and the patient already had abdominal movements and normal fecal evacuation (with slight pain of course) and no urinary incontinence. Unfortunately the microscopic evaluation of genital vegetations revealed an extensive epitheliomatous transformation requiring permanent oncological follow-up, but the patient “disappeared for ever” after she left the hospital.
B. Giant peno-scrotal lymphoedema: this is also a rare disease which incidence varies a lot according to several studies in the medical literature, from 1/150,000 to 1/1,500,000; as all other types of idiopathic lymphedema, the peno-scrotal lesion may be classified into three main categories:

- lymphoedema congenitum, which appear at birth or shortly after;
- lymphoedema praecox, which usually develops before the age of 35;
- lymphoedema tarda, which develops after the age of 35.

The diagnosis is not difficult due to the huge deformation of male external genitalia; on the other hand the ethiological diagnosis is very difficult and is made by progressive exclusion of all causes which could be involved in the development of the disease. No matter the ethiology, surgical treatment is the same, consisting in excision and early reconstruction of all anatomic structures involved, by plastic surgery procedures such as skin grafts and flaps.

Further will be discussed the case of a 42 year old patient with giant peno-scrotal lymphoedema; the disease appeared initially at the age of 20 and the patient has been operated in a famous Urology Department in the capital city of Romania. The initial lesions were small and the surgical result was very good for about 20 years (meanwhile he has married and had children). Two years before, a new peno-scrotal lymphoedema developed and this time the lesion became so huge, forcing the patient to leave his work and to be pensioned. He has been eventually sent to The University Hospital of Targu Mures and has been admitted in the General Surgery Department; here a combined team of two general surgeons and two plastic surgeons have performed (in about 5 hours) the complete excision of the lymphoedematous tissues, followed by early reconstruction.
Fig. 5: one can see the giant development of lymphoedematous tissues of the penis and scrotum (this last one reaching the knee joint); on the left side there is the glans (which is not involved in the oedematous process) and the prepuce having an important fibrous infiltrate.
Fig. 6: The image above shows the monstrous aspect of the external genitalia, which teguments are hard, fibrous and largely infiltrated by the connective lymphedematous proliferation, involving all anatomic structures external to tunica vaginalis.
Fig. 7: the fibrous connective proliferation is sponge-like soaked by the lymphatic liquid, extending as well as in the lower abdomen, as one can see in the image of above (the line of excision has already been marked on the abdominal skin).
Fig. 8: A radical excision has been performed removing all tissues involved by the connective fibro-lymphatic proliferation, from the glans of the penis to the scrotum and the supra-pubic region; one can see the two testicles attached to the spermatic cords, the corpus of the penis and the huge piece excised weighing over 5kg.
Fig. 9: as mentioned before, a large excision has been performed in the lower abdomen, followed by scrotum reconstruction using two advanced “shell-flaps” harvested from the inner and upper portion of both thighs and the posterior aspect of the old scrotum not involved in the oedematous process.
Fig. 10: The remaining defect on the corpus of the penis is covered by thick STSG, harvested from the inner aspect of the right thigh; for all penis reconstruction (when “noble structures such urethra, corpus spongiosum, corpus cavernosum are not involved in the excision) the author preference is for thick STSG either full-thickness skin grafts, because such grafts have an important dermal layer giving more elasticity to the repair and avoiding deformation during erection or by scar bands (which are more frequent when using medium-thickness STSG).
Fig. 11: final result of penis and scrotum reconstruction; there was no need to put drains in the neo-scrotum, but soft drains (made from surgical latex gloves) have been used for the supra-pubic region.
Fig. 12: one week later follow-up shows a very good result with full “take” of all grafts; surrounding the root of the penis, grafts have been applied in a funnel-shaped manner in order to create a provisional skin fold very useful for an adequate erection; on that occasion the uretral catheter has been removed (with no subsequent urinary problems). During all this early post-operative period the patient received antibiotic treatment, consisting of a 2nd generation cephalosporine and an aminoglycoside; dressing had to be changed daily, due to a lymph discharge from the lower abdomen, which persisted for about three weeks.
Conclusions: even though these acquired deformations of male and female genitalia are seldom seen in the daily medical practice, both diseases have a huge social, psychological and professional impact due to the high invalidity of those patients (who are young persons in the most part of cases); surgery is the only treatment and should be performed as soon as possible. Radical excision removing all tissues modified by viral either lymphedematous proliferation is the only therapeutic choice, thus avoiding relapses (which are about 30% for peno-scrotal lymphedema, despite the radical excision) due to new proliferations. Reconstructive surgery has to be done very early (following radical excision if possible), but may be delayed for 24-48 hours when excessive bleeding occurs. Free skin grafts, local flaps and adequate combinations of grafts and flaps can be very useful as reconstructive procedures; surgeon should take care to provide an adequate skin cover for the penis (which need “provisional skin” for erection); all the cases who have been operated by the author in the last 24 years have returned to a normal sexual life about three months after the operation. One of the main steps of the treatment is the complete evaluation before surgery, followed by radical excision which has to be always performed by a very well trained surgical team.

Unfortunately, the major concern for both cases is the malignant evolution of at least 1/3 of these lesions, which is why a permanent follow-up is mandatory.
THANK YOU FOR YOUR ATTENTION.