**Acrochordon**

An acrochordon is a small, soft, common, benign, usually pedunculated neoplasm that is found particularly in persons who are obese. It is usually skin colored or hyperpigmented, and it may appear as surface nodules or papillomas on healthy skin. Most acrochordons vary in size from 2-5 mm in diameter, although larger acrochordons up to 5 cm in diameter are sometimes evident. The most frequent localizations are the neck and the axillae, but any skin fold, including the groin, may be affected.

Birt-Hogg-Dube (BHD) syndrome is a rare autosomal dominant genodermatosis characterized by skin tumors, including multiple fibrofolliculomas, trichodiscomas, and acrochordons. These patients tend to develop renal and colonic carcinomas.

The defective gene in BHD syndrome has been identified and is suspected of being a tumor...
Suppressor gene. Several mutations of the BHD gene have been reported. 3

All skin lesions in the syndrome may actually represent fibrofolliculomas cut in various planes of section.

Related eMedicine articles of possible interest include Premalignant Fibroepithelial Tumor (Pinkus Tumor), Benign Vulvar Lesions, and Skin, Benign Skin Lesions.

**Pathophysiology**

Previous theories have suggested that a localized paucity of elastic tissue may result in sessile or atrophic lesions. It is also thought that pendulous variations may be caused by losses of large confluent areas of elastin; however, a 1999 study of elastic tissue in fibroepithelial polyps (FEPs) showed no significant abnormalities. 4

A cross-sectional study of adult patients at a university teaching hospital, including 98 patients and 103 controls, found that the presence of multiple skin tags was strongly associated with insulin resistance, irrespective of other risk factors. 5

In another survey, 113 patients with skin tags and 31 healthy subjects were evaluated. This work linked obesity, dyslipidemia, hypertension, insulin resistance, and elevated high-sensitive C-reactive protein with skin tags, suggesting they may serve as a marker of increased risk of atherosclerosis and cardiovascular disease. 6

**History**

Acrochordons are flesh-colored pedunculated lesions that tend to occur in areas of skin folds. A family history sometimes exists of acrochordons. These tumors are usually asymptomatic, and they do not become painful unless inflamed or irritated. Patients may complain of pruritus or discomfort when an acrochordon is snagged by jewelry or clothing.
Acrochordons may occur at unusual sites of the body. A huge acrochordon has been described on the penis. A lymphedematous acrochordon of the glans penis unassociated with condom catheter use also has been described. An acrochordon may be associated with vulval itching without the symptom being the result of fungal infection.

Endoscopy may reveal FEPs arising in a ureter.

Multiple skin tags are often linked with type 2 diabetes mellitus and with obesity, prompting a study of 58 people with skin tags. It showed that people with skin tags had significantly higher serum cholesterol and lower density lipoprotein levels, but not serum leptin levels, when compared with a healthy control group lacking skin tags.

**Physical**

Skin tags may occur singly or multiply, and they are most often found in intertriginous areas (eg, axillae, neck, eyelids) (see the image below). They are also commonly located on the trunk, the groin, the abdomen, and the back.

FEPs of the oral mucosa, anus, and vulvovaginal areas may be found. These lesions may be flesh colored or hyperpigmented. Pedunculated lesions may become twisted, infarcted, and fall off spontaneously.

Three types of acrochordons are described, as follows:

- Small, furrowed papules of approximately 1-2 mm in width and height, located mostly on the neck and the axillae
- Single or multiple filiform lesions of approximately 2 mm in width and 5 mm in length occurring elsewhere on the body
- Large, pedunculated tumor or nevoid, baglike, soft fibromas that occur on the lower part of the trunk
Causes

Frequent irritation seems to be an important causative factor, especially in persons who are obese. An opinion also exists that acrochordons are simply the effect of skin aging, with many factors responsible for their development. Hormone imbalances may facilitate the development of acrochordons (eg, high levels of estrogen and progesterone during pregnancy, high levels of growth hormone in acromegaly). Epidermal growth factor (EGF) and alpha tissue growth factor (TGF) have also been implicated in the development of tumors such as these. Whether any infective factors initiate acrochordon growth is still not clear.

Human papillomavirus (HPV) types 6/11 DNA were found in a high percentage of skin tag biopsy samples obtained from 49 white patients. According to the authors of the study, viral infection should be considered as a pathogenic cofactor.  

Acrochordons associated with fibrofolliculomas and trichodiscomas have been described as components of BHD syndrome, an autosomal dominant disorder. They have been reported to accompany other neoplasms, especially tumors of the gastrointestinal tract and kidneys. Neoplasms are suggested to produce and release growth factors that cause acrochordon growth into the circulation. The results of a recent study refute the theory that an association of acrochordons and colonic polyps actually exists.

An association with type 2 diabetes mellitus has been observed. A study of 118 research subjects with acrochordon reported an incidence of 40.6% of either overt type 2 diabetes mellitus or impaired glucose tolerance. Reports exist suggesting that the mechanism is through the effect of insulin and glucose starvation.

The previous study showed no correlation between the location, size, color, or number of acrochordons with impairment of glucose tolerance.

Imaging Studies
A congenital perineal skin tag manifested as a perineal tumor during a second-trimester ultrasound scan at 23 weeks' gestation. It was an innocuous finding.

**Histologic Findings**

Acrochordons are characterized by acanthotic, flattened, or frondlike epithelium. A papillarylike dermis is composed of loosely arranged collagen fibers and dilated capillaries and lymphatic vessels (see the images below). Appendages are generally absent. Acrochordons were thought to be marked by decreased numbers of elastic fibers, though one study of elastic tissue in FEPs showed no deficiency of this tissue.

Acrochordons (skin tags) are often considered clinically insignificant cutaneous redundancies that should be removed without histopathologic analysis. However, one may rarely find another neoplasm within an acrochordon. A squamous cell carcinoma that had features resembling a keratoacanthoma was recently described.

**Surgical Care**

Skin tags are generally treated for noncosmetic reasons.

Small, pedunculated acrochordons may be removed with curved or serrated blade scissors, while larger skin tags may simply require excision. For small acrochordons, application of aluminum chloride prior to removal will decrease the amount of minor bleeding.

Anesthesia prior to electrodesiccation is another option.

Other methods of removal include cryotherapy and ligation with a suture or a copper wire.
however, freezing of the surrounding skin during liquid nitrogen cryotherapy may result in dyschromic lesions. Taking hold of the acrochordon with forceps and applying cryotherapy to the forceps may provide superior results.

A 2008 report describes a patient with circumferential prolapsed hemorrhoids with skin tags; the patient was treated with a modified Ferguson hemorrhoidectomy, with successful results.