"Molluscum” Conditions in Dermatology

Abstract
In dermatology, the word "molluscum" is used as a prefix for infective and non-infective conditions. The term is used to describe soft papules or nodules with or without central umbilication, which is not a necessary qualification. This article attempts to summarise the conditions in dermatology with the epithet “molluscum” and discuss them in brief.

Keywords: Molluscum contagiosum, molluscum fibrosum, molluscum fibrosum gravidarum, molluscum leprosum, molluscum sebaceum.

Introduction
In dermatology, the word “molluscum” is used as a prefix for infective and non-infective conditions. Originally, the Latin word “molluscum” referred to a fungus growing on maple tree. It is derived from “mollis” meaning “soft”. “Mollusca” also refers to a phylum in the animal kingdom, presumably named because of their soft bodies, e.g. octopus, squid. In dermatology, the term is used to describe soft papules or nodules with or without central umbilication; although over the years, it is popular perception to consider it synonymous with umbilication. Though, umbilicated lesions may be seen in a variety of infective, inflammatory, reactive, benign as well as malignant dermatological conditions, the term molluscum has only been used for a limited number of entities.[1]

We attempt to summarise the conditions in dermatology with the epithet “molluscum”. The specific conditions are described below.

Molluscum contagiosum
It is a cutaneous viral infection, caused by Molluscum contagiosum virus (MCV), a poxvirus (dsDNA virus), which is the largest virus infecting humans.[2] Four genotypes of the virus are known (namely MCV 1-4). Of these, MCV-1 is responsible for 76-97% of infections.[3]

Clinically, it manifests as pearly white papules with a central umbilication, involving any cutaneous site [Figure 1]; however, the lesions in adults are more common in the anogenital area and can be sexually transmitted.[4] Rarely, MCV can cause folliculitis in immunosuppressed individuals, called molluscum folliculitis.[5] It presents as skin-coloured to red papules over the face.[6] At times, a Type IV hypersensitivity or Ig reaction to the virus can cause a dermatitis around the papule in 10% of individuals, ranging in size from 5 mm to 10 cm. It is known as molluscum dermatitis and it may lead to resolution of the papule. Vice-versa is also true, that is removal of the lesion results in resolution of the dermatitis.[7] Patients with atopic dermatitis (AD) can also present with widespread MCV infection, commonly localized to eczematous skin lesions of AD; though it may extend beyond due to autoinoculation. This presentation is known as eczema molluscatum.[8]

Histopathological features are diagnostic including a “septate tomato” appearance due to lobular hyperplasia of the epidermis.[9] Individual keratinocytes feature intra-cytoplasmic, basophilic viral inclusions called Molluscum bodies or Henderson-Paterson bodies.[10]

Treatment options include various ablative methods like mechanical or chemical removal. Mechanical methods include cryotherapy, curettage, pulse dye laser while chemical cauterization can be done with cantharidin, potassium hydroxide, podophyllotoxin, trichloroacetic acid, salicylic acid, lactic acid, glycolic acid, benzoyl peroxide, or tretinoin. Various
immunomodulatory agents can be used including imiquimod 5% cream, oral cimetidine, interferon alfa, candidin, and diphencyprone.[2] Specific antiviral therapy may occasionally be used for very extensive lesions, in the form of cidofovir.[11]

**Molluscum fibrosum**

Juvenile hyaline fibromatosis (JHF) or Murray-Puretic-Drescher syndrome was first described as molluscum fibrosum by Murray in 1873.[12] It belongs to the spectrum of hyaline fibromatosis syndrome, including infantile hyaline fibromatosis, in addition to JHF. It is an autosomal recessive connective tissue disease caused by mutation in ANTXR2 (Anthrax Toxin Receptor 2)/CMG2 (capillary morphogenesis factor-2) gene on chromosome 4q21.[13]

Clinically, it presents with multiple papulonodular lesions localized to head and neck, large subcutaneous nodules over scalp, decreased joint mobility, gingival hypertrophy and osteolytic lesions of skull, phalanges and long bones.[14] Histology of skin lesions shows a normal epidermis with extracellular and perivascular dermal deposition of homogeneous hyaline, PAS (Periodic Acid Schiff) positive and eosinophilic material.[15]

No treatment guidelines are available, though skin lesions can be treated by surgical excision and/or intralesional and systemic steroids, for localized and extensive involvement respectively, with some success.[14]

**Molluscum fibrosum gravidum**

These are benign, small, pedunculated, tan-to-brown, fleshy papules similar to acrochordons (skin tags) that are commonly seen on the neck, axillae, vulva, inner aspects of the thighs, and inframammary folds [Figure 2]. They frequently appear during the second half of pregnancy and may even regress postpartum. They are hypothesised to occur under the influence of maternal hormones.[16]

Treatment is by shave excision, electrocautery, cryosurgery, and snipping with scissors.[16]

**Molluscum fibrosum pendulum**

It is also known as molluscum pendulum and is seen in 23% of patients with tuberous sclerosis complex (TSC).[17] TSC is caused by mutations in TSC1 and TSC2 genes encoding hamartin and tuberin proteins respectively.[18] It presents as soft pedunculated growths around the neck [Figure 3], axilla and groin in patients with TSC.[19] They resemble skin tags found in obese and elderly, but in TSC it presents at a much younger age.[20]

Histopathologically, these lesions are characterised by epidermal papillomatosis with a central fibrovascular core.[20] Treatment is by simple excision.

**Molluscum leprosum**

Lesions of histoid leprosy with central depression are also called as molluscum leprosum.[21] These were first described in lepromatous leprosy patients on dapsone
monotherapy.\cite{22} It is characterised by the presence of papules and nodules with superficial ulceration and few lesions showing depressed centre [Figure 4] resembling molluscum contagiosum.\cite{23}

Histopathology shows an atrophic epidermis with a “band of Unna” at the dermo-epidermal junction. The dermis appears hypercellular with diffuse infiltration by fusiform macrophages admixed with a few plasma cells and absence of foamy cells. Histiocytes can be present at the periphery of the lesions.\cite{24}

The treatment for this condition is multibacillary multidrug therapy (MB-MDT consisting of dapsone, clofazimine and rifampicin) which may have to be given over prolonged periods.

**Mollusroid Pseudotumor**

These smaller, tumor-like lesions present as blue-grey spongy outgrowths over sites of pressure, like elbows and knees in classical Ehlers Danlos Syndrome (EDS).\cite{25} It is one of the minor diagnostic criteria for the diagnosis of classic subtype of EDS in Villefranche criteria (1997). Classical EDS is an autosomal dominant connective tissue disorder caused by mutation in COL5A1 and/or COL1A1 genes coding for Type V and Type I collagen, respectively.\cite{26}

Other clinical features include hyperextensible, fragile and soft “doughy” skin, atrophic “cigarette paper” scarring, generalized joint hypermobility, epicanthic folds, easy bruising, subcutaneous spheroids, hernia, joint subluxation and dislocation.\cite{26}

Histologically, the lesions of molluscoïd pseudo-tumors are composed of herniated fat and mucoid material, encased in a fibrous capsule. Older lesions may undergo dystrophic calcification. No treatment is effective, though surgical excision can be done for larger, distressing lesions.\cite{25}

**Molluscum sebaceum**

More popularly known as keratoacanthoma (KA), molluscum sebaceum is a low-grade tumor originating from pilosebaceous follicles.\cite{27} The risk factors for the development of a solitary KA include exposure to UV radiation, as for other non-melanoma skin cancers (NMSC). The appearance of multiple KA’s are associated with TGFBR1 gene and MMR gene in Ferguson-Smith and Muir-Torre syndrome, respectively.\cite{28,29} Any sun-exposed part may be involved, but the most frequently affected site is the central face including the nose [Figure 5], cheeks, eyelids and lips.\cite{30}

Histopathologically, it is an exo-endophytic tumor with lobulations and a central keratinous plug with well-defined borders. Normal epidermis covers the overhanging epithelial lips. Individual cells are large with ground glass like cytoplasm without nuclear atypia.\cite{31}

The lesion is mostly self-resolving. Whenever possible, surgical excision is the preferred treatment; other options include ablative lasers, cryotherapy, radiotherapy.
Gaurav and Grover: “Molluscum” conditions in dermatology

Conclusion
To conclude, “molluscum” is an eponymous terminology used in dermatology for a variety of conditions which are characterised by soft, papular or nodular growths, with or without umbilication. This article highlights that etiologically, these conditions may not be inter-related.

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Conflicts of interest
There are no conflicts of interest.

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Figure 5: Moulluscum sebaceum or Keratoacanthoma. The lesion is a soft nodule with a central crater filled with keratinous debris.

Photodynamic therapy, topical treatment with 5-Fluorouracil, imiquimod, podophyllin, systemic erlotinib and retinoids.[30]

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