COMPARATIVE CLINICAL AND HISTOPATHOLOGICAL STUDY ON COLLOID MILIUM IN THE SKIN

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Colloid milium (CM) is unusual cutaneous disorder with unknown prevalence. The disease usually present clinically by the development of yellowish translucent or flesh-colored papules on sun-exposed skin. Histologically, it is characterized by the presence of colloid in the dermal papillae, with mistakenly diagnosed both keloid or facial amyloidosis. Microscopical finding showed atrophic or ulcerous epidermis with a large deposition of amorphous eosinophilic material containing fissures which expanded the dermal papillae with extension into deep derm (papules or plaques on sun-exposed skin). Histologically it is characterized by the presence of CM. We have studied the most frequent classic adult type. The diagnosis was made after an examination a skin biopsy under light microscopy. For distinguishing colloid from amyloid, the differential stain must be used. The other three recognized variants (juvenile colloid, pigmented colloid milium (hydroquinone related) and colloid degeneration (paracolloid) are very rare and did not analysed.


Key words: Colloid milium, skin cancer, histological characteristics

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Introduction

Colloid milium (CM) was first described by Wagner in 1866 as "Das Colloid-Milium Der Haut" and has been known historically as colloid pseudomilium, colloid infiltrativum, hyalinoma (1-5). CM is an unusual rare cutaneous degenerative process with unknown prevalence, linked to excessive sun exposure and to petroleum products and hydroquinone (6-7). It was pointed out that CM in the nodular type represents a degeneration product of elastic fibers which is most frequent induced by solar radiation (8-10). Colloid milium includes at least four distinct clinicopathological conditions (5): - classic, the adult variant, typically affects areas of sun damage on fair-skinned persons (6-9). It is characterized by the presence of multiple, dome-shaped or flesh-colored papules developing on light-exposed skin and the observance of dermal colloid under light microscopy. The following variants are also pointed out: - recognized adult type; - juvenile colloid milium; - pigmented colloid milium (hydroquinone related) and - colloid degeneration (paracolloid), gray to black areas on the face and neck, probably heterogenous group (10-14).

Aim

Both histopathologic mimicker of Colloid Milium, and its cutaneous deposition on light-exposed skin, are the reasons for this retrospective clinical, morphological, and histochemical study. We must make a distinction between histopathologic mimicker, dermatopathologist’s initial impression of nodular amyloidosis, calcinosis cutis, milia cystis, multiple syringoma et keratosis. The purpose to further therapy and prognosis of this difficult to treat entity.

Materials and methods

We analysed 12 surgical biopsies of the CM for clinical diagnosis of adult type (head skin tumours) on: nose (4), upper lip (1), eyelid (1), forehead (3), beard (2) and on the scalp (1). Taken surgical
biopsies were fixed during 24 h. in 10% formaldehyde solution. Treatment of fixed material was performed in aurtotechnicon in "HUMAN POLICLINIC". Paraffin sections of 4 micrometer -thickness were stained with the following methods: conventional H&E technique for histopathological diagnosis of the present process. Specific histochemical PAS, Van Gieson and Congo red methods were also used, to confirm the presence of CM.

Results

Clinical characteristics

CM is a rare cutaneous deposit disease, that usually presents clinically by the development of yellowish semitranslucent or flesh-colored papules or plaques on sun-exposed skin.

Of the 86 patients, operated because of “malignant timorous formations” in the skin of the face, CM was detected incidentally in 12 (13.9%) patients, more frequently in females (8 : 4), in mid -adult life (54 years), 1 - 5 mm in diameter, dispersed in the cheeks: nose, upper lip, eyelid, periocular region forehead, beard and on the scalp.

Macroscopical characteristics

CM is a rare cutaneous condition with four subtypes, characterized clinically by development of yellowish translucent papules or plaques on sun - exposed skin. In some of patients, the lesions were increasing in Summer and decreasing in Winter. Only CM occurring in the palpebra and conjunctiva (1 case) was presented like gelatinous - small translucent dome-like amber papules. Patients describe a gradual eruption of papules or nodules on sun – exposed areas.

Microscopical characteristics

Histology examination of paraffin sections, has revealed in the epidermal papillary dermis (Figure 1) the pale homogenous eosinophilic material, expanding the epidermal papillae and extending into deep dermis. Scattered lymphocytes and plasma cells were observed at the periphery. Colloid material is concentrated in the upper and midder parts of the dermis (Figure 2) with sparing subepidermal layer of the papillary dermis (Grenz zone) (Figure 3). In this manner, the dermis is filled throughout with fissured eosinophilic colloid material showing characteristic long and horizontal artifactual clefts (Figure 4 and 5). Sometimes, subepidermal Grenz zone is partially lined with fibroblastic cells (Figure 6).

Figure 1. Homogenous Colloid material expanding papillary derm. HE x 200
**Figure 2.** Basocellular Ca, with homogenous Colloid Milium in deeper derm and with inflammation. HE X 200

**Figure 3.** CM spared subepidermal Grenz zone. HE x 200
Figure 4. Fissured CM in squamo-basocellular carcinoma cutis. PAS x 200

Figure 5. Ulcerous basocellular cancer, with fissured dermal Colloid Milium. PAS x 200

Figure 6. Colloid with subepidermal Grenz zone, partially lined by fibroblasts: HE x 300
Discussion

The material in the dermis represents a degeneration, product of elastic fibers which is induced by solar radiation and colloid degeneration (5). Colloid degeneration including at least four distinct clinicopathological conditions ( 7-10 ) :

- classic adult type CM (adult form develops in sun exposed parts of the body in patients who have actinic-damaged skin); it develops in mid-adult life;

plenty of cells- brown semitranslucent papules, or plaques, 1 - 4 mm in diameter; are seen in the cheeks, ears, neck and dorsum of the hands. Chronically sun-damaged skin, whether it was that of actinic elastosis, or that actinic keratosis, basal cell epithelioma, polymorphic light eruption, discoid lupus erythematosus or colloid milium, showed striking staining characteristics. This involved predominantly the upper one-third of the dermis, but often extended, with progressively decreasing intensity, into the mid-dermis. The intensity of staining was directly proportional to the extent of actinic damage clinically. Attempts to remove these lesions are generally unsuccessful, but either dermabrasion or long-pulsed YAG laser has been reported to be effective (14). For many years dermatopathologists have recorded and described the basophilia associated with actinally damaged skin. In some instances it is an aid to diagnosis.

- juvenile colloid milium (exceedingly rare prior puberty: papules or plaques are seen on the face and neck);

- pigmented type CM: hydroquinone related

- colloid degeneration (paracolloid) : - gray to black areas on the face and neck, is probably a heterogeneous related group. The lesions of colloid milium tend to reach a peak within three years, after which few new papules occur. The lesions do not resolve and occasionally may be pruritic (12).

In literature, some cases of severe adult colloid milium were papillomatosis cutis associated with vitiligo (15), or patient who habitually was exposed to UVA-radiation for 7 years, twice a week, for aesthetic reasons.

A mucoid or gelatinous substance can sometimes be expressed from these papules by applyin pressure or puncture. The lesions are often easily hemorrhagic with minor trauma. Involved skin may be thickened, furrowed, and hyperpigment ed. The male-female ratio is 4:1 (14).

Conclusion

Colloid Milium is a rare degenerative condition with unknown prevalence and with the the presence of multiple dome-shaped amber or flesh-colored papules or plaques on sun exposed skin. This prevalence was about 13% in analysed operative skin specimens from tumorous formations of the face, and more commonly in women. Diagnosis is based on light microscopy study of a skin biopsy, which shows fissured eosinophilic colloid masses in the papillary dermis, with sparing subepidermal layer of the papillary dermis. Amyloid stains are negative. Differential diagnosis have an important role in the categorization of lesions.

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References

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KOMPARATIVNA KLINIČKA I HISTOPATOLOŠKA STUDIJA KOLOIDNOG MILIJUMA KOŽE

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Koloid milijum (CM) je neobično kožno oboljenje nepoznate prevalence. Bolest se obično klinički ispoljava žućkastim prozračnim ili papulama boje mesa na koži eksponiranoj suncem. Histološki, karakterisana je prisustvom koloida u dermalnim papilama, sa pogrešno dijagnostikovanim keloidom ili facijalnom amiloidozom. Mikroskopski nalaz je pokazivao atrofni ili ulcerozni epidermis sa velikim depozitim amorfnog eozinofilnog materijala koji sadrži fisure koje šire dermalne papile prema dubljim delovima derma (papule ili plakovi na koži eksponiranoj suncem). Histološki je karakterisano prisustvom CM. Proučavali smo najčešći klasični, juvenilni i pigmentni koloid milijum korisniho i pigmentnog koloid milijum (povezan sa hidrohinonom) i koloidna degeneracija (parakoloid) su veoma retke i nisu analizirane.


Ključne reči: Koloid milijum, kancer kože, histološke karakteristike