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COMPARATIVE CLINICAL AND HISTOPATHOLOGICAL STUDY ON COLLOID MILIUM OF 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-coloured papules on the sun-exposed skin. Histologically, it is characterized by the presence of colloid in the dermal papillae, with mistakenly diagnosed either keloid or facial amyloidosis. Microscopical findings showed atrophic or ulcerous epidermis with a large deposition of amorphous eosinophilic material containing fissures which expand the dermal papillae with extension into deep dermis (papules or plaques on the sun-exposed skin). Histologically, it is characterized by the presence of CM. We have studied the most frequent, classic adult type. The diagnosis was established after an examination of a skin biopsy under light microscopy. For distinguishing colloid from amyloid, differential stain had to be used. The other three recognized variants (juvenile colloid, pigmented colloid milium (hydroquinone related) and colloid degeneration (paracolloid)) are very rare and were not analysed.

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Key words: *coloid 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 fibres which is most frequently 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 coloured papules developing on the 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 (hydrquinone 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 the 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 and keratosis. The purpose was to determine 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) taken from the nose (4), upper lip (1), eyelid (1), forehead (3), chin (2) and scalp (1). The taken surgical biopsies were fixed during 24 h in 10% formaldehyde solution. Treatment of fixed material

was performed in autotechnicon in "HUMAN POLICLINIC". Paraffin sections of 4 micrometer thickness were stained with 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-coloured papules or plaques on the sun-exposed skin.

Of 86 patients operated for "malignant tumours formations" on 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), 1-5mm in diameter, dispersed in the cheeks, nose, upper lip, eyelid, periocular region forehead, chin and 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 the summer and decreasing in the 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

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

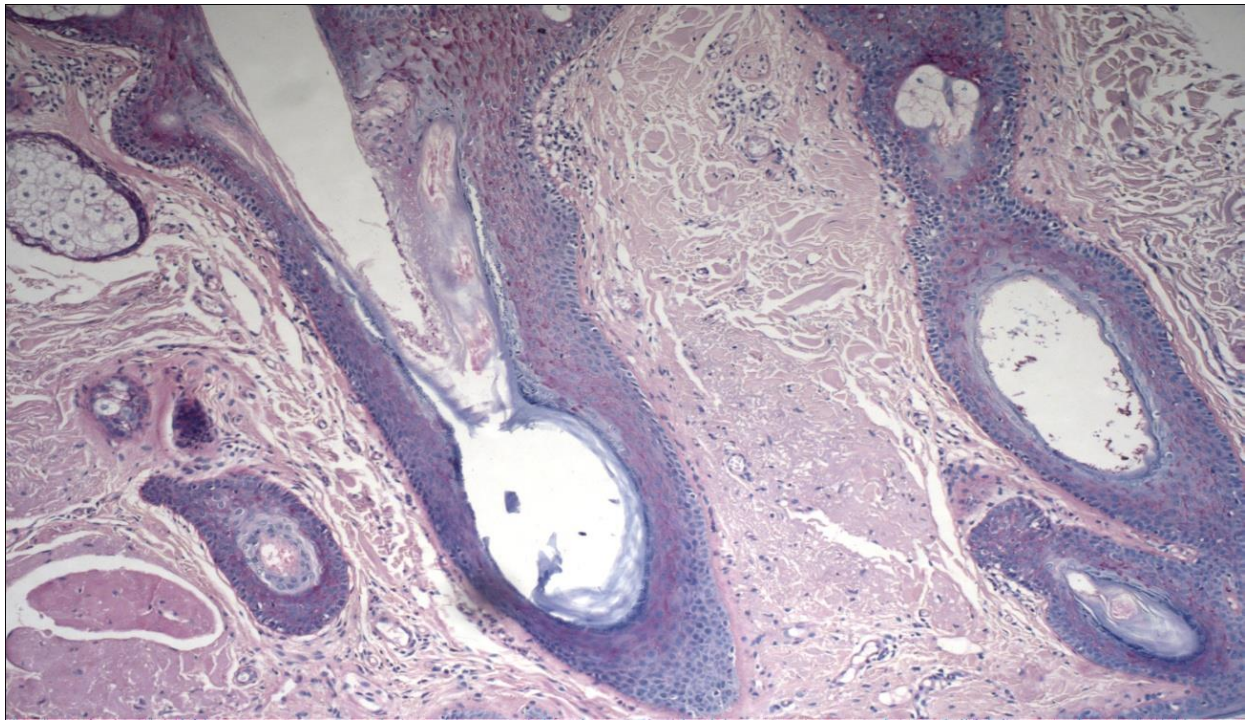

Figure 1. Homogenous Colloid material expanding papillary derm, HE x 200

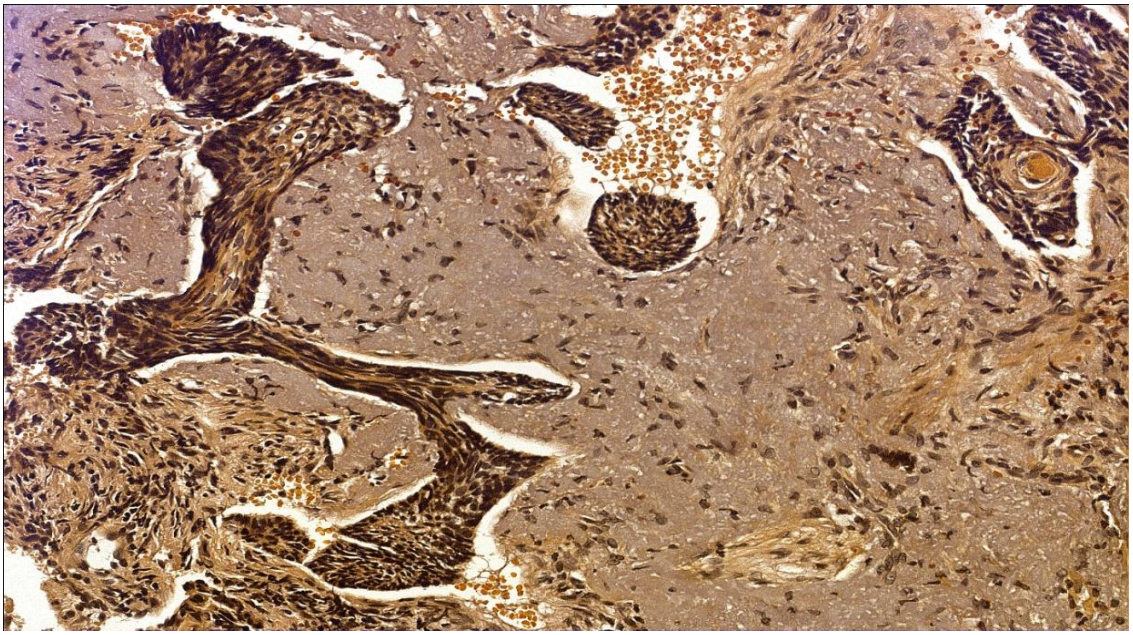

Figure 2. Basocellular Ca, with homogenous Colloid Milium in deeper derm and with inflammation, HE X 200

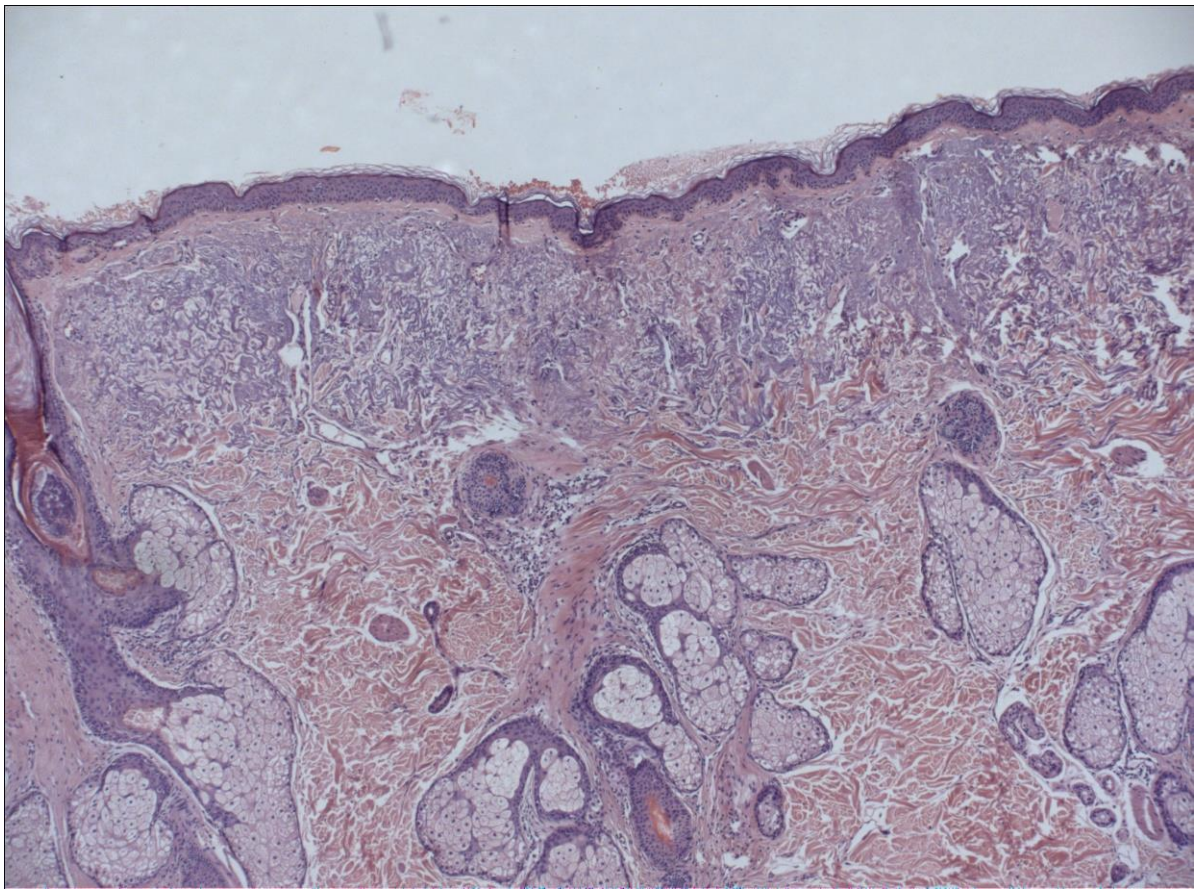

Figure 3. CM spared subepidermal Grenz zone, HE x 200

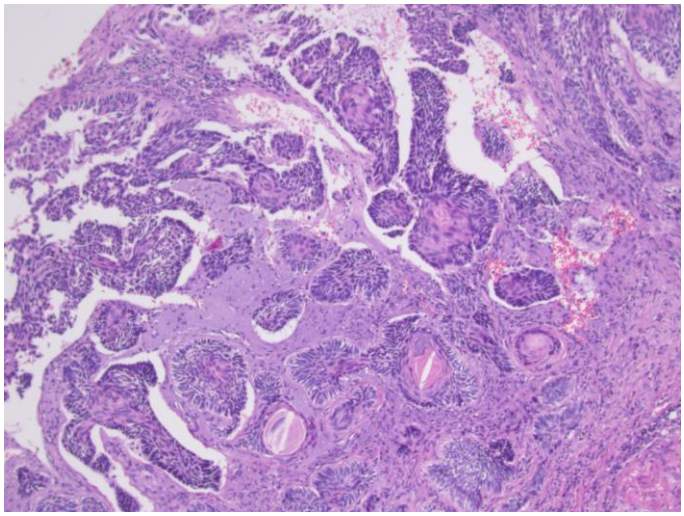

Figure 4. Fissured CM in squamo-basocellulare carcinoma cutis, PAS x 200

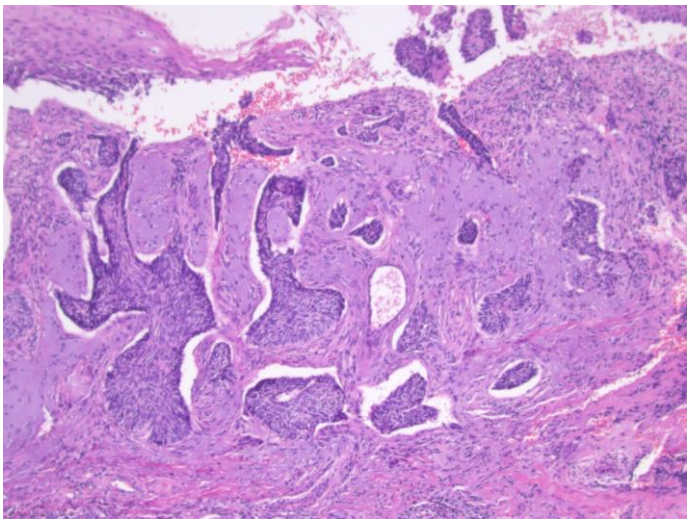

Figure 5. Ulcerous basocellular cancer, with fissured dermal Colloid Milium, PAS x 200

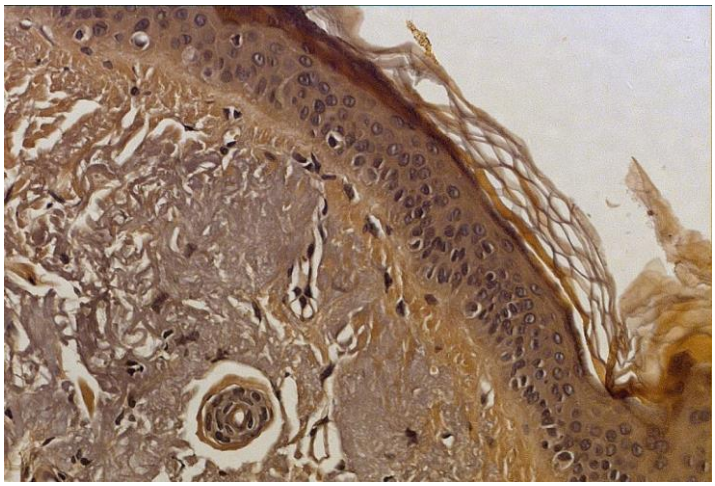

Figure 6. Colloid with subepidermal Grenz zone, partially lined by fibroblasts: HE x 300

Discussion

The material in the dermis represents a degeneration, product of elastic fibres which is induced by solar radiation and colloid degeneration (5). Colloid degeneration includes 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, 1-4mm in diameter, seen in the cheeks, ears, neck and dorsum of the hands. Chronically sun-damaged skin, whether it was that of actinic elastosis, or actinic keratosis, basal cell epithelioma, polymorphic light eruption, discoid lupus eritematosus or colloid millium, 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. At-tempts to remove these lesions are generally unsuccessful, but either dermabrasion or long-pulsed YAG laser has been reported to be effective (14). Dermatopathologists have recorded and described the basophilia associated with actinically damaged skin for many years. In some instances it is an aid to diagnosis.
- juvenile colloid milium (exceedingly rare prior to 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, it 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).

There are some cases in the literature where severe adult colloid milium presented as papillomatosis cutis associated with vitiligo (9); further, there is a case of a patient who was habitually exposed to UVA-radiation twice a week for 7 years for aesthetic reasons.

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

Conclusion

Colloid milium is a rare degenerative condition with unknown prevalence and with the presence of multiple dome-shaped amber or flesh-coloured 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 common 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 has an important role in the categorization of lesions.

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KOMPARATIVNA KLINIČKA I HISTOPATOLOŠKA STUDIJA KOLOIDNOG MILIJUMA KOŽE

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Koloid milijum (CM) je neobično kožno oboljenje nepoznate prevalencije. 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 dijagnostifikovanim keloidom ili facijalnom amiloidozom. Mikroskopski nalaz je pokazivao atrofični ili ulcerozni epidermis sa velikim depozitima 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 adultni tip. Dijagnoza je postavljena nakon ispitivanja biopsije tkiva pod svetlosnim mikroskopom. Za razlikovanje koloida od amiloida upotrebljavane su različite boje. Ostale tri prepoznate varijante (juvenilni koloid, pigmentni koloid milijum (povezan sa hidrohinonom) i koloidna degeneracija (parakoloid) su veoma retke i nisu analizirane.

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Ključne reči: *Koloid milijum, kancer kože, histološke karakteristike*