CASE NOTES

SCLEROSING LIPO-GRANULOMA IN THE ORBIT*

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THIS case is reported as a mass in the lower lid presumed to be due to "sclerosing lipo-granuloma".

Case Report

A boy aged 16 years reported at the Surbiton Branch of the Royal Eye Hospital on December 29, 1956, complaining of a painless swelling in his left lower lid which had appeared gradually during the past 7 days. He had received a light blow from a fist on his left eye while "fooling around with a friend" about 4 weeks previously, *i.e.* in the first week of December. The swelling had subsided uneventfully in the course of a week to 10 days, but 7 days before attending hospital it had re-appeared and had gradually become larger. There was no pain, tenderness, lacrimation, diplopia, or enlargement on sneezing or coughing.

Examination.—The visual acuity was 6/9 unaided in the right eye and 6/9 less 2 unaided in the left eye. The mass involved the entire width of the lower lid and extended to an inch below the lid margin. It was firm in consistency, although rather irregularly so, as if there were calcareous nodules in it. There was no tenderness on firm pressure, no fluctuation, and no transillumination. The skin was bound down to the mass which could not be distinguished from the orbital margin, nor moved away from it. There was some chemosis of the bulbar conjunctiva at the outer angle and some oedema of the upper lid. The pre-auricular lymph node was not palpable.

There was no proptosis, and no limitation of ocular movement. The eye was quiet and the fundus appearance normal.

X ray of the left orbit revealed no bony injury and no bony deposits in the left lower lid.

Diagnosis, Treatment, and Progress.—A provisional diagnosis of unresolved haematoma with renewed bleeding was made, and a subcutaneous injection of 1,000 units hyaluronidase in 1 ml. distilled water was given into the mass through the skin. The swelling partly subsided during the next few days.

By January 14, 1957, the swelling had become appreciably larger. There was slight proptosis and limitation of action of the inferior rectus muscle presumably caused mechanically by the pressure of the mass. The visual acuity in the left eye was recorded as 6/12. There was no pyrexia and no tenderness.

On January 19, 1957, the swelling had still further increased in size and was causing considerable displacement upwards and a little outwards. Eye movements were limited in all directions, there was more chemosis, the left upper lid was more oedematous, and a mass not previously noted was palpable in the outer corner of the left upper lid. This was also firm but differed from the mass in the lower lid in having well-defined edges; it was not attached to skin and was freely movable over the orbital margin. There was no palpable isthmus between this and the larger mass. No pre-auricular adenopathy was found, but the left tonsillar lymph gland was palpable.

The patient was admitted to hospital for further investigations and observation. General examination revealed an asthenic build with pigeon chest and lumbar kyphosis. There were small palpable axillary lymph nodes, but no lesions were found in the circulatory, respiratory, or cardiovascular systems. The blood pressure was 120/80.

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Laboratory Investigations.—Erythrocyte sedimentation rate 15 mm. in 1 hr (Wintrobe); haemoglobin 96 per cent. (Haldane) equivalent to 14.2 g.; white blood count: 6,800 per c.mm., neutrophils 58, lymphocytes 38, monocytes 2, eosinophils 2, Wassermann reaction, Kahn test, and gonococcal complement-fixation tests were all negative; bleeding time 1 min. 25 sec., clotting time 4 min. 15 sec.

A second x ray taken some 3 weeks after the first showed no abnormality in the orbit. There was no calcification in the lower lid, no evidence of sinus infection, and no bony abnormality. The left sphenoidal fissure was a little wider than the right. No pulmonary lesion was seen in the chest x ray. A consultant E.N.T. surgeon reported no abnormality in the patient's nose or sinuses.

A search for actinomyces in the material removed from some superficial sebaceous cysts near the edge of the mass proved negative, and a culture of this material isolated *Staphylococcus aureus*.

Meanwhile, the patient was treated with systemic penicillin and sulphadimidine, in case the mass had originated from some deep-seated suppuration.

As investigations proved inconclusive, he was submitted to biopsy to exclude a possible rhabdomyosarcoma.

Dr. M. Lederman of the Royal Marsden Hospital very kindly arranged for biopsy to be performed at that hospital. Two pieces were removed for section, one from the swelling in the lower part of the orbit through the lower lid itself, and the other from the upper and outer part of the left orbit.

Dr. D. Gowing, Pathologist at the Royal Marsden Hospital, reported as follows:

"Two specimens were received. Microscopical examination shows similar features in both. There are many large fat vacuoles with surrounding groups of histiocytes and giant cells. Dense fibrosis is present, the fibrous tissue being infiltrated with lymphocytes, plasma cells and a few polymorphs. The appearances are those of a granuloma following traumatic fat necrosis ("sclerosing lipo-granuloma"). There is no evidence of new growth."

Prof. Norman Ashton, of the Department of Pathology, Institute of Ophthalmology, kindly reported on a biopsy specimen sent to him by Dr. Lederman, and confirmed the diagnosis of "sclerosing lipo-granuloma", the report being as follows:

"Section shows a mass of dense fibrous tissue containing numerous fat spaces surrounded by two sharply demarcated zones; an inner one of the macrophages and foreign body giant cells, and an outer one of loose relatively cellular fibrous tissue. The remainder of the mass is infiltrated both focally and diffusely with inflammatory cells of all types. The histological picture is typical of sclerosing lipo-granuloma."

Photographs showing macroscopic and microscopic features of the mass were also prepared by Prof. Ashton (Figs 1-4).

FIG. 1.—Sclerosing lipo-granuloma in upper and lower lids, showing extent of swelling due to underlying mass.

FIG. 2.—Involvement of upper and lower lids by sclerosing lipo-granuloma.

FIG. 3.—Typical histological appearance of sclerosing lipo-granuloma, showing infiltration with inflammatory cells of all types. $\times 90$.

- (a) Fat spaces
- (b) Macrophages and foreign body giant cells
- (c) Loose, relatively cellular fibrous tissues.

FIG. 4.—High-power photomicrograph, showing same features as Fig. 3. $\times 200$.

Result.—Subsidence of the chemosis and oedema of the eyelids, which had begun 2 days before biopsy, continued after the biopsy was performed, and all treatment was discontinued when the pathological diagnosis was known. The patient was discharged on February 9, 1957, and one week later the visual acuity in the left eye was 6/6, and the swelling was appreciably smaller and softer. There were no symptoms, and the patient returned to work.

On March 23, 1957, the swelling appeared unchanged, and treatment with potassium iodide 10 gr. was started to see its effect on the course of the swelling.

Discussion

In a review of fourteen cases of sclerosing lipo-granuloma, Smetana and Bernhard (1950) discussed this condition as a pathological entity. They recognized that a peculiar granulomatous reaction which occurred in subcutaneous fat tissues after injury of various types had long attracted the attention of clinicians and pathologists. Differences in behaviour, course, and significance have led to the recognition of several clinical entities and syndromes within the large and ill-defined group of conditions characterized by the reaction:

- (1) Traumatic fat necrosis of the female breast;
- (2) Relapsing febrile non-suppurative nodular panniculitis, or Weber-Christian disease;
- (3) Adiponecrosis subcutanea neonatorum and calcinosis;
- (4) Changes in the lung parenchyma after the aspiration of oils and fats.

Even after the separation of these recognized entities, there remained a large number of cases characterized by a granulomatous reaction in the subcutaneous fat tissue of essentially uniform histological appearance, but attributed to different causes. The many names applied to the conditions characterized by this reaction, which have added to the confusion and difficulty of diagnosis, include:

(1) Saponifying necrosis;	(4) Lipo-granuloma;
(2) Necrosis of subcutaneous fat tissue;	(5) Adiponecrosis;
(3) Ischaemic fat necrosis;	(6) Lipoid necrobiosis.

A study of a number of cases characterized by tumourous swelling of subcutaneous fat in several different locations had indicated the desirability of choosing a name descriptive of the basic pathological characteristics. The name suggested was "sclerosing lipo-granuloma", a term which was descriptive of the lesion but which was not limited by implications as to causation, location, or clinical features.

Of the fourteen cases described, nine were genital, three gluteal, one was in the arm, and one in the orbit. The patient with this condition in the orbit first complained of a small pimple in the right temporal region. The mass, which involved the retrobulbar fatty tissue, was removed to relieve pressure on the eye, and the diagnosis was made on histological examination. No history of trauma was given.

Pincus (1935) mentioned a case presenting with recurrent abscesses of the eyelids, finally resulting in a fistula and pressure on the eye causing blindness. There was no history of trauma, and the diagnosis was made on histological examination after partial exenteration.

Reese (1951), discussing chronic granulomata of the orbit, reported a case due to fat necrosis, presenting as a localized tumour-like mass in the eyelid, that appeared spontaneously without any known cause. There was again no history of trauma.

Smetana and Bernhard (1950) came to the conclusion that the only treatment known to influence the course of sclerosing lipo-granuloma is the complete surgical removal of the tissue involved.

The progress of the swelling in the present case, which has been treated conservatively, will be kept under observation.

Summary

A case is described of an orbital swelling which was diagnosed on biopsy as a sclerosing lipo-granuloma, a form of fat necrosis with granulomatous reaction. A definite history of trauma was given.

We are grateful to Mr. T. M. Tyrell for permission to report this case, and to Mr. A. J. Cameron, Dr. M. Lederman, Prof. Norman Ashton for their interest, advice, and help.

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