

1 **A clinical sign for aiding the diagnosis of unilateral orbital fat herniation**

2

3 **Abstract**

4 Sub-conjunctival orbital fat herniation is a rare occurrence. These masses can be easily mis-
5 diagnosed as more sinister lesions. We present a unilateral case of this condition and a
6 useful, previously undescribed clinical sign, which obviated the need for orbital imaging.

7 **Key Words**

8 Orbital, fat, herniation, prolapsed

9 **Introduction**

10 Subconjunctival fat herniation is a rare finding.[1-4] Intra-conal orbital fat herniates through
11 a dehiscence in Tenon's capsule to form a mass, usually under the supero-temporal bulbar
12 conjunctiva. SFH has been mistaken for choristomas (dermoid cysts and dermolipomas),
13 lymphomas, pleomorphic lipomas and lacrimal gland tumours or cysts.

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15 Orbital fat herniation through inferior orbital septum to form protuberances of the lateral
16 area of the lower lid an upper cheek is a more common finding, particularly in elderly, obese
17 males. It has been referred to as 'steatoblepharon' or 'palpebral bags'.

18

19 Orbital fat prolapse is frequently misdiagnosed. We report a previously unreported, useful
20 clinical sign that helped confirm the clinical diagnosis.

21 **Case Report**

22 A 76-year-old man was referred to the orbital clinic with an asymptomatic right, supero-
23 temporal anterior orbital mass, which had been present for five years. The patient had
24 diabetes hypertension, high cholesterol and had had a cardiac bypass for which he took
25 multiple medications. There was no ophthalmic history. On examination there was a large,
26 soft, yellow, mobile, subconjunctival, mass in the supero-temporal orbit, directly inferior to

the palpebral lobe of the lacrimal gland (fig 1). The posterior edge of the mass was not visible. The mass did not have dermis, glands, keratin or hair on it. There was also bilateral infero-temporal preseptal fat prolapse, with the left prolapse being markedly larger than the right (fig 2a and b). There was no proptosis, diplopia, acuity/colour vision reduction, papillary abnormalities, tenderness or conjunctival inflammation. The mass was diagnosed clinically as orbital fat herniation and no imaging was performed.

Discussion

Supero-temporal subconjunctival masses may be intra-orbital fat herniation, dermoid cyst, dermolipoma, lymphoma and pleomorphic lipoma. Unlike the present case, dermoid cysts and dermolipomas usually present in childhood and are typically firm and white and their surface contains sebaceous glands and sometimes hair follicles. Lymphomas are usually flat and 'salmon pink' in colour. Orbital pleomorphic lipomas are extremely rare, with only a few cases in the literature.[5] Although similar in appearance to OFH they gradually increase in size. OFH should not be confused with the lacrimal gland, which is located superiorly to the fatty mass. The present case was suspected as being an orbital fat prolapse as the lesion was soft, yellow and mobile. The finding of bilateral, but asymmetrical inferior fat pads supported the diagnosis. The inferior fat pad on the side with the subconjunctival fatty mass was markedly smaller than the fellow side. There appears to have been a similar degree overall of fat herniation on each side, but on one side all the herniated fat was located in the inferior fat pad but on the other side it was split between the inferior fat pad and the superior subconjunctival fatty mass. This useful clinical sign, which has not been previously reported, obviated the need for CT scanning.

The orbit contains both intra-conal fat (within Tenon's capsule) and extra-conal fat (outside Tenon's capsule). CT scanning from other case series of subconjunctival OFH showed extrusion of intra-conal fat.[1, 4] Inferior fat pads are usually thought to derive from extra-

53 conal fat. However, in the present cases, the clear splitting of fat between the superior
54 conjunctival area and the inferior lid indicates a common source. It is likely that inferiorly,
55 intra-conal fat herniated through both tenons and orbital septum – both of which atrophy
56 with age - to form the lower lid fat pad.

57

58 Subconjunctival orbital fat prolapse is usually unilateral and supero-temporal, but has been
59 described to occur bilaterally and nasally and inferiorly.[4] The reported case series are all
60 small, but age, male sex and obesity all seem to be risk factors.[2, 4] OFH has been reported
61 in a young child, although in this case the dehiscence in Tenon's capsule was caused by
62 penetration with a wire.[4]

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65 The patient in the present report was asymptomatic and elected for conservative
66 management. Surgical excision has been conducted in other case series for both diagnostic
67 and cosmetic reasons.[4] The lesions have been clamped, cut and the base diathermied prior
68 to releasing the clamp. No recurrences or complications have been reported, but there is a
69 risk of retrobulbar haemorrhage.

70

71 OFH is frequently misdiagnosed. Assessment of the inferior fat pads may facilitate a clinical
72 diagnosis and avoid the need for further investigations, referrals or excision.

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74 **Declaration of Interests**

75 The authors report no conflicts of interest. The authors alone are responsible for the content
76 and writing of the paper

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78 **Figure Legends**

79 Fig 1: Supero-temporal orbital fat herniation

80 Fig 2: Asymmetrical infero-temporal pre-septal fat pads: right smaller than left

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83 **Fig 1 Right herniated fat**



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85 **Fig 2 Right and left_ external**

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