A Case of Nodular Primary Localised Cutaneous Amyloidosis

Learning Points and Update

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The Case

A 62 year old gentleman of South Indian origin presented with a one year history of two lesions on his left outer cheek. They were asymptomatic. He has a past medical history of type 2 diabetes mellitus with chronic renal impairment.

Examination revealed two well-defined lesions on the malar prominence of the left cheek. A 20 x 25mm smooth brown plaque (Fig. 2) and a 5 x 7 mm papule anteriorly. They were non-tender and not attached to underlying tissue.

Histopathological studies on the incisional biopsy of the lesion was initially reported to show a granulomatous reaction to vellus hair, dense fibrosis in the dermis and chronic perivascular inflammation with few plasma cells. Further study showed dermal deposition of eosinophilic hyaline material (Fig. 3) that stained positively for Congo red (Fig. 4). A diagnosis of nodular primary localised cutaneous amyloidosis was made. His baseline investigations for systemic amyloidosis were negative. He was referred for a trial of laser treatment and remains under annual review.

Discussion

There are 3 sub-types of primary cutaneous amyloidosis: macular, lichenoid and nodular. They are characterised by the extra-cellular amyloid deposition within the skin. Nodular primary localised cutaneous amyloidosis (NPLCA) is the rarest form of localised cutaneous amyloidosis. Amyloid proteins are insoluble aggregates of misfolded (beta-pleated sheet) proteins. The more common forms of cutaneous amyloid, macular and lichenoid are associated with keratinocyte-derived amyloid whereas NPLCA is caused by amyloid of the light chain (AL) type. This is produced by monoclonal plasma cells and is the same amyloid sub-type present in primary and myeloma-associated amyloidosis. NPLCA has been associated with many autoimmune and connective tissue diseases, namely Sjorgen’s disease.

Investigations

Systemic amyloidosis causing cutaneous symptoms needs to be ruled out first. Histopathological findings are the same in both the localised and primary cutaneous form so through investigation at time of diagnosis is paramount. Baseline laboratory investigations include and are not limited to FBC, U+Es, LFTs, coagulation profile, ESR, serum electrophoresis and urinary Bence-Jones proteins. An autoantibody screen should also be carried out for ANA, ENA and liver autoantibodies in view of association with autoimmune disease. There are no clear guidelines for duration and frequency of follow-up but most studies advocate at least yearly follow-up with baseline blood investigations and urinalysis. Scintigraphy with iodine-123 labelled serum amyloid-P component (SAP) has been reported as being a monitoring tool for early detection of systemic amyloidosis.

Treatment

Treatment is based on improving the cosmetic appearance of the lesions. Various options such as surgical resection, dermabrasion, cryotherapy, electrodesessication and curettage, intra-lesional steroid injections and carbon dioxide laser. The rate of recurrence is high with all the above, but most recent studies support the use of carbon dioxide laser

Progression to systemic amyloidosis

The first reports on NPLCA quoted progression rates of up to 50% by Brownstein and Helwig in 1970, based on case studies of 10 patients. More recent studies have shown a more modest rate of progression at around 5-15%. A table summarising reported progression rates is included below.

<table>
<thead>
<tr>
<th>Name of study</th>
<th>Cohort size</th>
<th>Mean follow-up time</th>
<th>Reported rate of progression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brownstein &amp; Helwig 1970</td>
<td>10</td>
<td>Unknown</td>
<td>50%</td>
</tr>
<tr>
<td>Northcutt &amp; Vanover 1985</td>
<td>47</td>
<td>Unknown</td>
<td>15%</td>
</tr>
<tr>
<td>Woollons &amp; Black 2001</td>
<td>15</td>
<td>12 years</td>
<td>7%</td>
</tr>
<tr>
<td>Moon et al 2003</td>
<td>16</td>
<td>10 years</td>
<td>6%</td>
</tr>
</tbody>
</table>

Conclusion

Nodular primary localised cutaneous amyloidosis (NPLCA) is characterised by cutaneous deposition of amyloid L. It is the rarest type of localised cutaneous amyloidosis and is the only one that has the potential for systemic involvement. The rate of progression was initially thought to be as high as 50%. Recent studies have reported a significantly lower rate of 10%, but still highlight the importance for screening and follow-up. The lesions are asymptomatic and treatment is directed at improving cosmetic appearance.