Pergamon

Oral Oncol, Eur J Cancer, Vol. 30B, No. 5, pp. 362–364, 1994

0964–1955/94 $7.00 + 0.00

0964–1955(94)E0001–J

Cacogeusia in Amyloidosis Associated With Plasma Cell Dyscrasia

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Cacogeusia, being the patients' main complaint, is reported as a new symptom of amyloidosis, probably caused by a peripheral sensory neuropathy. A case is presented of a patient with weight loss, dysphagia, macroglossia and taste disturbances, due to amyloidosis associated with a plasma cell dyscrasia. The importance of oral manifestations in amyloidosis is discussed.

Keywords: amyloidosis, plasma cell dyscrasia, macroglossia, cacogeusia, taste disturbances

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INTRODUCTION

AMYLOIDOSIS ASSOCIATED with a plasma cell dyscrasia may present itself initially with oral symptoms, especially with macroglossia.

A new symptom, cacogeusia, is reported leading to the diagnosis of this plasma cell dyscrasia.

CASE REPORT

A 72-year-old man presented with cacogeusia during meals, as his leading complaint. Cacosmia was absent. He also experienced a mild dysphagia and a considerable weight loss of 27 kg in 6 months. The dysphagia began 6 months earlier. Furthermore, there was a chronic fatigue and the man suffered from paresthesiae in his hands and feet.

Clinical examination upon admittance showed a mild macroglossia (Fig. 1). The tongue was diffusely hardened with lateral scalloping.

Because of the taste disturbances an U.P.S.I.T. (University of Pennsylvania Smell Identification Test) [1] was undertaken, which showed a hypo-osmia (score 21/40). Computed tomography scan of the paranasal sinuses was normal.

An electromyographic examination showed an axonal sensorimotor polyneuropathy of the hands and feet to nearly the same degree.

Since amyloidosis was the most likely aetiology of macroglossia in this patient, an echocardiography was performed. This revealed a restrictive cardiomyopathy and a decreased left ventricular function, as a result of which our patient developed progressive heart failure. The myocardium had the typical appearance of amyloid deposition.

Biopsies were taken of the lip and of the peri-umbilical fat tissue. Pathological examination of these specimens showed the presence of amyloid type AL (Fig. 2). This kind of amyloid is encountered only in primary amyloidosis.

To evaluate the possibility of a multiple myeloma, protein electrophoresis and immune protein electrophoresis were performed on plasma and on urine.

In the urine light chains, type lambda were found (Bence-Jones proteinuria), indicating the likelihood of a plasma cell dyscrasia. The diagnosis of plasma cell dyscrasia was confirmed by the presence of large amounts of plasmocytes (12%) in bone marrow, in the absence of "punched-out" lesions in the axial skeleton or skull.

Therapy with melfalan 20 mg/day and prednisone 80 mg/day, 4 days every 6 weeks, was prescribed.

The macroglossia and the cacogeusia responded well to this

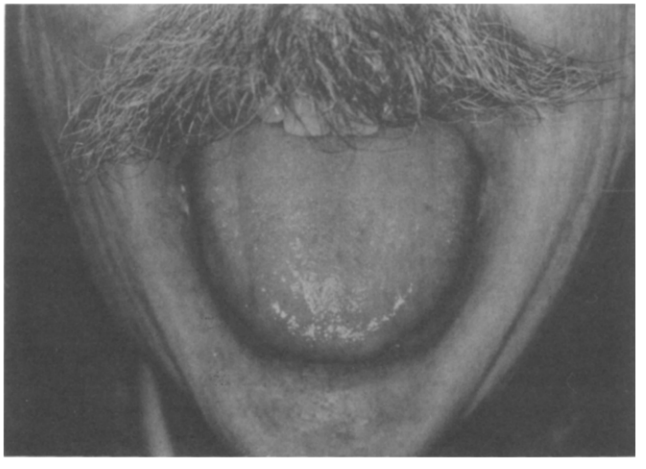

Fig. 1. Mild macroglossia, with scalloped lateral margins to the tongue.

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Received 7 Oct. 1993; provisionally accepted 9 Nov. 1993; revised manuscript received 16 Feb. 1994.

therapy and within a few weeks the taste was reported to be normal. The heart failure was more resistant and massive pleural transudates developed, for which drainage of the thoracic cavity was necessary. Cardiac function stabilised after 8 weeks.

DISCUSSION

Primary amyloidosis is a plasma cell dyscrasia that shares many features with multiple myeloma. Multiple myeloma is seen in about 1/5 of all patients with primary amyloidosis [2]. Of all patients with multiple myeloma, 6–15% develop amyloidosis [3].

The deposits contain amyloid light chain (AL), composed of Ig chain fragments containing whole or part of the variable domain, or both [4]. AL amyloid is found mainly in the visceral organs such as the kidneys, liver and spleen. The most important clinical features are peripheral neuropathy, restrictive cardiomyopathy, purpura, macroglossia, carpal tunnel syndrome and amyloid arthropathy.

Oral manifestations are encountered in approximately 40% of all patients with amyloidosis [5] (Table 1). Of these, macroglossia is the most frequent; it is found in 20–25% of cases [3, 5, 6].

In primary amyloidosis, macroglossia is more frequent than in multiple myeloma-associated amyloidosis (20–50%/10–20%) [6].

Other oral manifestations are dental indentations on the tongue, enlargement of the submandibular salivary glands, petechiae, papules or plaques on the oral mucous membrane [7]; infiltration of the salivary glands may lead to xerostomia [3].

Another important clinical feature is polyneuropathy, present in 10–20% of patients with amyloidosis. The affected neurones are usually of the sensory type. Although taste stimuli are transferred by sensory neurones, cacogeusia has not previously been reported as a leading symptom of primary amyloidosis. Only one publication reports taste disturbances in amyloidosis. Ujike and colleagues [8] published a case of total ageusia and left anosmia in a 55-year-old woman with IgG-L-type amyloidosis. Macroglossia developed 3 years after the onset of the ageusia, which suggests that only a small amount of amyloid is necessary to produce taste disturbances.

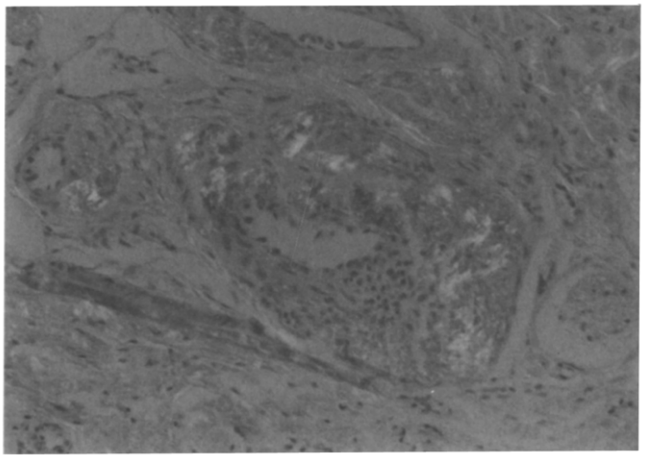

Fig. 2. Lip biopsy, showing perivascular amyloid deposition; seen under polarised light (as here) the typical "birefringence" of amyloid is demonstrated (Congo red staining).

Table 1. Classification of amyloidosis

1. Primary amyloidosis; type AL (amyloid light chain)
2. Multiple myeloma associated; type AL
3. Secondary or reactive amyloidosis, in chronic infectious or inflamatory diseases; type AA (amyloid A protein)
4. Heredofamilial amyloidosis; type AA–AF
5. Local amyloidosis, e.g. with medullary thyroid carcinoma; type AE
6. Amyloid deposition in the elderly; type AS

Table 2. Classification and aetiology of macroglossia

A. True macroglossia (abnormal pathological findings)
   1. Congenital
      - Vascular malformations (e.g. lymphangioma, haemangioma)
      - Muscular hypertrophy (Beckwith–Wiedeman syndrome)
      - Systemic disease (glycogen storage disease, I cell disease)
      - Tumours (dermoid cysts)
   2. Acquired
      - Tumours (e.g. epithelioma)
      - Systemic diseases: amyloidosis, acromegaly
      - Local reactive changes: oedema, infections

B. Relative macroglossia (normal pathological findings)
   1. Congenital
      - Down's syndrome, congenital hypothyroidism
   2. Acquired
      - Functional: after mandibular prognathism reduction
      - By elevation: Ludwig's angina
      - Systemic: myxoedema

In our case, other and more frequent causes of cacogeusia, such as paranasal sinus pathology, xerostomia and bad oral hygiene were excluded. A sensory polyneuropathy is thought to be the cause of the cacogeusia. The presence of polyneuropathy at other sites of the body supports this suggestion.

CONCLUSION

Cacogeusia is presented as a new leading symptom in primary amyloidosis. Oral manifestations, and in particular macroglossia, are frequent in amyloidosis.

These symptoms must, therefore, focus our attention in patients with other signs or symptoms of amyloidosis or history of disease leading to amyloidosis (e.g. multiple myeloma, chronic infectious or inflammatory diseases). The combination of macroglossia and peripheral neuropathy (e.g. taste disturbances) is particularly indicative of amyloidosis.

In the presence of these symptoms, the diagnostic work-out for amyloidosis should comprise echocardiography, immune electrophoresis on blood and urine and biopsies of periumbilical fat tissue, lip and affected organs, i.e. the tongue. When multiple myeloma is suspected, bone marrow investigations should be performed.

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