

Renal Cell Carcinoma with Metastasis to the Submandibular and Parotid Glands

A Case Report

Jan G. Smits, Pieter J. Slootweg

Department of Pathology, Diaconessen Hospital, Utrecht Department of Oral Pathology (Head: P. J. Slootweg, M. D., D. M. D.) State University of Utrecht, The Netherlands

Accepted for publication 22. 2. 1984

Introduction

Metastatic disease in major salivary glands is rarely seen. Conley and Arena (1963) reported 81 cases of involvement of the parotid gland by metastatic tumours. The head and neck were the most frequent primary sites, especially the scalp and ear. There was a wide range of neoplasms involved, with melanoma (45.7%) and squamous cell carcinoma (37%) predominating.

Metastatic disease from a primary tumour outside the head and neck region also occurs, but is rarely seen. With respect to the parotid gland 8 metastatic tumours from primary sites other than the head and neck region have been recorded. Patey et al. (1965) reported 5 cases of distant metastatic growth (lung, 2 cases; pancreas; stomach; and kidney). The metastasis from the kidney was erroneously diagnosed as a primary tumour, the correct diagnosis being made after 4 years, when the primary tumour in the kidney was discovered. Sist et al. (1982) also reported a case of renal cell carcinoma presenting as a primary parotid gland tumour. Parkin and Stevens (1976) have seen a patient with carcinoma metastatic to the parotid gland from an adenocarcinoma of the prostate. Grage and Lober (1962) reported a case in which the site of the primary tumour was a squamous cell carcinoma of the renal pelvis.

Four cases of metastatic spread to the submandibular gland from a primary tumour outside the head and neck region have been recorded in the literature. The primary tumours were located in the breast, lung and kidney (Mallett, 1961; Grage and Lober, 1962; Solomon et al., 1975; Januska et al., 1978).

The present paper is concerned with a patient in whom a renal cell carcinoma gave origin to multiple metastatic growths in the parotid as well as the submandibular gland, which were originally misdiagnosed as primary tumours due to insufficient clinical information.

Case Report

A 60-year-old woman was seen in November 1970 complaining of haematuria and pain. Physical examination and selective arteriography revealed a tumour of the medulla of the right kidney (Fig. 1), for which she underwent a

Summary

Differential diagnosis between acinic cell carcinoma and renal cell carcinoma is an oft-quoted problem. A case is presented of a 60-year-old woman with metastatic lesions from a renal cell carcinoma to the parotid as well as the submandibular gland. Appropriate diagnosis was delayed due to lack of clinical information.

Key-Words

Clear cell tumour – Salivary gland tumour – Metastatic renal cell carcinoma

nephrectomy in December 1970. Histological examination of the surgical specimen showed a tumour consisting of large epithelial cells which were arranged in lobules of varying sizes which were surrounded by a richly vascularized stroma. The cells exhibited a clear cytoplasm containing large, polygonal nuclei with prominent nucleoli (Fig. 2). There were P.A.S. positive, diastase negative granules in the cytoplasm. Diagnosis was renal cell carcinoma. Renal vein invasion or spread through the capsule were not noted. Physical and chest x-ray examination revealed no regional or distant metastatic disease at that time. Thereafter the patient was lost to follow-up. Seven and a half years later (June 1978) she returned with a movable, 3 cm. × 2 cm. × 1 cm. left submandibular mass of unknown duration. The mass was excised. According to the surgeon this non-pulsatile tumour originated from the submandibular gland. Histological examination revealed both normal salivary gland tissue and a neoplasm, composed of large, clear cells with irregular-shaped nuclei. The P.A.S. positive granules in the cytoplasm lost their P.A.S. reactivity following diastase digestion. There was a sparse fibrous stroma. At that time the previous history of renal cell carcinoma was not known to the pathologist. Diagnosis was acinic cell carcinoma of the left submandibular gland. One year later (June 1979) the patient presented again, this time with a painful 2 cm. × 1.5 cm. × 1 cm. mass in the right parotid region. At surgery the tumour seemed to originate outside the parotid gland, on its lateral surface near the apex, a location that fits with an involvement of the paraglandular lymph nodes. Histological examination of the removed specimen revealed a tumour that was entirely identical to the tumour removed one year before (Fig. 3). The history of the renal cell carcinoma was still not known to the pathologist and the diagnosis of a primary acinic cell carcinoma of the right parotid gland was made. In January 1983 several painful tumour nodules were noted in the submandibular region at the same site as in June 1978 and the patient was again submitted to surgery with the presumptive diagnosis of recurrent salivary gland tumour. Histological examination revealed the same microscopic findings as were noted in 1978. At this time the pathologist was informed about the previous history of renal cell carcinoma. As a consequence, the former diagnoses were revised. The histopathology of the parotid as well as the submandibular tumour tissue were felt to be consistent with metastatic renal cell carcinoma. Additional screening revealed no other sites of metastases, and all laboratory values were within normal limits. At present (Sept. 1983) the patient is well and free from disease.

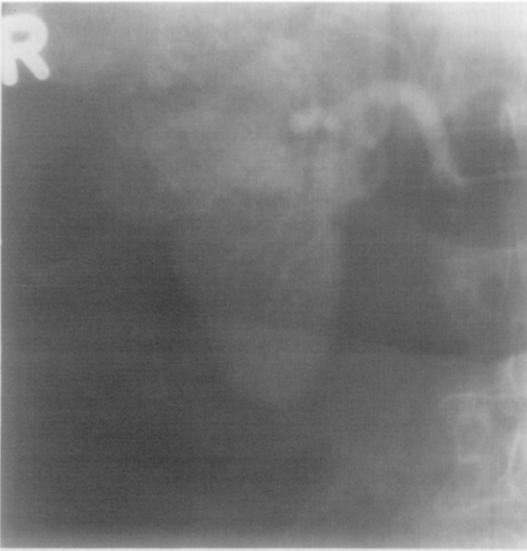


Fig. 1 Selective arteriography of right kidney reveals a diffuse vascular process in the central part, which is compatible with a renal cell carcinoma.

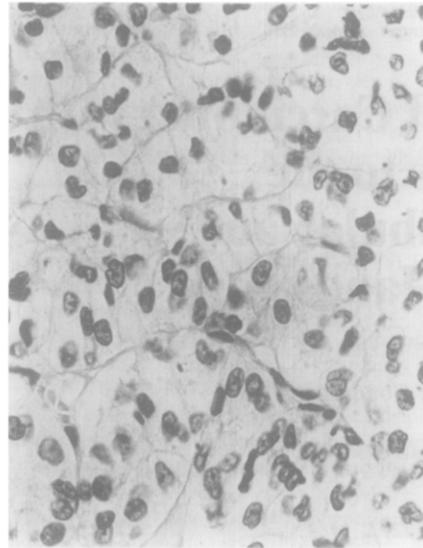


Fig. 2. Photomicrograph shows representative area of the kidney tumour that was removed in 1970. The tumour is composed of closely packed lobuli of clear polygonal cells with irregularly outlined nuclei with prominent nucleoli (H & E, X 240).

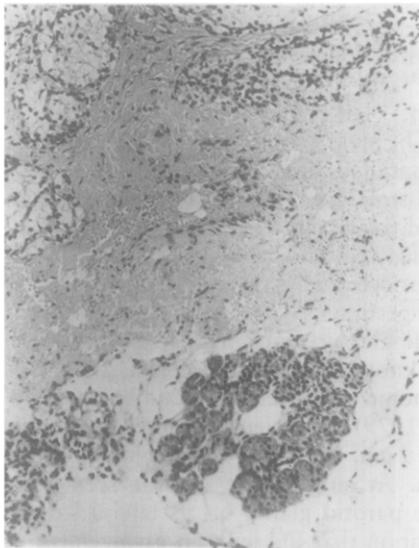


Fig. 3 Photomicrograph shows metastatic tumour tissue with adjacent parotid gland tissue, removed in January 1983 (H & E, X 36).

Discussion and Conclusion

The importance of providing adequate information to the pathologist cannot be overemphasized as demonstrated by the present case. In addition, one should be aware that metastatic disease from distant sites to the major salivary glands may occur. The search for a primary tumour outside the head and neck region should not be omitted. Moreover, one must bear in mind the differential diagnostic problems of clear cell tumours of the major salivary glands. The use of special stains may be very helpful, because the cells of renal cell carcinoma frequently contain glycogen and therefore are P.A.S. positive, and diastase negative (Bennington, 1967). The granules of acinic cell carcinoma are mucopolysaccharide and therefore P.A.S. positive and diastase resistant (Evans and Cruickshank, 1970). The loss of P.A.S. reactivity after pretreatment with diastase that was ob-

served in the submandibular tumour in 1978 should have caused suspicion of the diagnosis of acinic cell carcinoma, but was not properly interpreted at that time. Moreover the histo-chemical reactions are sometimes inconsistent, as outlined by Batsakis et al. (1978).

The present case represents an additional example of the oft-quoted problem of differentiation between acinic cell carcinoma and metastatic renal cell carcinoma. Both head and neck surgeon and pathologist should be aware of this pitfall when dealing with a clear-cell tumour in the oral and para-oral regions.

References

- Batsakis, J. G., E. Chinn, J. A. Regezi, D. A. Repola: *The Pathology of Head and Neck Tumours. Salivary Glands, Part 2, Head and Neck Surg.* 1 (1978) 167
- Bennington, J. L.: *Renal Carcinoma.* Saunders, Philadelphia 1967, p. 79
- Conley, J., S. Arena: Parotid gland as a focus of metastasis. *Arch. Surg.* 87 (1963) 757
- Evans, R. W., A. H. Cruickshank: *Epithelial tumours of the salivary glands.* Saunders, Philadelphia 1970, p. 109
- Grage, T. B., P. H. Lober: Malignant tumours of the major salivary glands. *Surgery* 52 (1962) 284
- Januska, J. R., S. G. Leban, E. Orange: Pulmonary metastasis to the submandibular gland. *J. Oral Surg.* 36 (1978) 50
- Mallett, S. P.: A renal cell metastatic carcinoma involving the mandible and submaxillary gland. *Oral Surg.* 14 (1961) 4
- Parkin, J. L., M. H. Stevens: Unusual parotid tumours. *Laryngosc.* 87 (1976) 317
- Patey, D. H., A. C. Thackray, D. H. Keeling: Malignant disease of the parotid. *Br. J. Cancer* 19 (1965) 712
- Sist, T. C., F. C. Marchetta, P. C. Milley: Renal cell carcinoma presenting as a primary parotid gland tumour. *Oral Surg.* 53 (1982) 499
- Solomon, M. P., Y. Rosen, B. Gardner, N. Y. Brocklym: Metastatic malignancy in the submandibular gland. *Oral Surg.* 39 (1975) 469

Dr. J. G. Smits
Department of Pathology
Diaconessen Hospital
Bosboomstraat 1
NL-3582 KE Utrecht

Dr. P. J. Slootweg
Department of Oral Pathology
Dental Institute, State University
Sorbonnelaan 16
NL-3584 CA Utrecht