

# The oral tumours of two American presidents: what if they were alive today?

Andrew Renehan FDSRCS<sup>1</sup> John C Lowry FRCS FDSRCS<sup>2</sup>

*J R Soc Med* 1995;88:377-383

**Keywords:** *microvascular reconstruction; palatal tumours; squamous cell carcinoma; tonsillar fossa; verrucous carcinoma*

## INTRODUCTION

Since the inauguration of George Washington as the first President of the United States in 1789, 40 men have held this authoritative office. Many of them have brought with their fame a medical label, for example, John F Kennedy and Addison's disease. Two presidents, in particular were afflicted with tumours arising in the oral cavity. They were General Ulysses S Grant (1822-1885) and Grover Cleveland (1837-1908). This article tells the stories of their illnesses and discusses the contrast, between then and now, in our understanding of the pathologies and in the way in which they may be treated today.

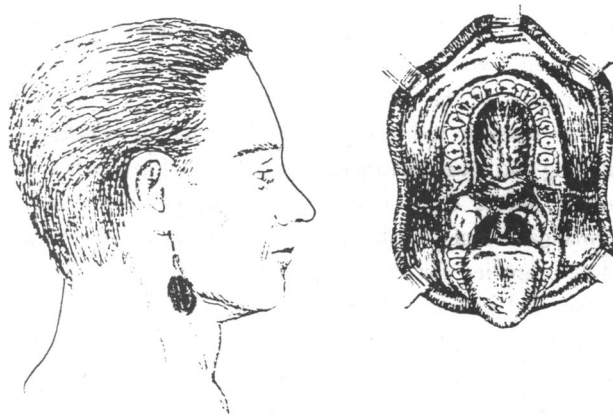


**Figure 1** General Ulysses S Grant (1822-1885). American President for two consecutive terms 1869-1877. (Taken from Durant J and Durant A. *Pictorial History of American Presidents*. New York: AS Barnes & Co, 1958).

<sup>1</sup>University of Manchester, Faculty of Medicine, Stopford Building, Oxford Road, Manchester M13 9PT

<sup>2</sup>Department of Oral and Maxillofacial Surgery, Bolton Hospitals NHS Trust, Minvera Road, Farnworth, Bolton BL4 0JR, England, UK

Correspondence to: Mr A Renehan, c/o Department of Oral and Maxillofacial Surgery, Bolton Hospitals NHS Trust



**Figure 2** The lesion as described by Dr Douglas would be classified today as T<sub>1</sub>N<sub>1</sub> carcinoma of the tonsillar fossa

## GENERAL ULYSSES GRANT

In early June 1884, 7 years after leaving office as President of the United States, General US Grant (Figure 1) complained of soreness of the throat particularly when eating peaches 'of which he was fond'. Grant, aged 62 years old, and a very stubborn man, delayed seeking medical advice. However, after persuasion by his wife, he was examined by a Doctor Da Costa. At the time, the General was spending summer with his family in Long Beach, New Jersey and was advised to see his family physician, Doctor Fordyce Barker in New York. The latter was away in Europe until October and observing the order of the time, Grant sought no other consultation. The disease received a head start of 12 weeks and when Barker examined the ex-president, he immediately referred him to Doctor John Hancock Douglas<sup>1</sup>.

Doctor Douglas was regarded as a 'throat specialist' of the day. On the morning of 22 October 1884, Douglas examined Grant and described a lesion of the right tonsillar fossa 'of serious epithelial trouble' together with a neck node. Today, this would be classified as a T<sub>1</sub>N<sub>1</sub> carcinoma (Figure 2). Grant enquired from Douglas to the nature of his problem. Douglas wrote afterwards 'The question having been asked I could give no uncertain, hesitating reply... I said "General, the disease is serious, epithelial in character, and sometimes capable of being cured"'.<sup>2</sup>

It is known that Grant was a heavy smoker and, for at least part of his career, he had been a heavy alcohol drinker. The ex-president's fondness for alcohol dated back to his

early army days during the Mexican War (1846–1848). However, it is thought that while a General and later as President, this habit had relinquished<sup>2</sup>. His tobacco habit is interesting. It is alleged that prior to the American Civil War, he was a light smoker. However, following victory at Fort Donelson in 1862, he was depicted by the media as smoking a cigar in the midst of battle. In gratitude, he was sent as many as 10 000 cigars from people in the North. He told his aide, Horace Porter<sup>3</sup> 'I gave away all I could get rid of but having such a quantity on hand, I naturally smoked more than I would have under ordinary circumstance, and I have continued the habit ever since'.

The tonsillar lesion was initially treated by cessation of smoking and local treatment of topical iodoform, salt water gargles, dilute carbolic acid gargle, gargles composed of permanganate of potash and yeast, and 4% topical cocaine solution applied for the relief of pain. These measures, of course, did not arrest the growth of the tumour and by December, the lesion had spread to the posterior fauces, base of tongue and the palate. Destruction of the soft palate followed giving Grant great difficulty in eating.

On 18 February 1885, a biopsy of the lesion was undertaken and examined by Doctor George R Elliott, of New York. His description of the tumour, together with drawings, published in the *Medical Record* suggested a lesion that would today be reported as a squamous cell carcinoma<sup>4</sup>. The pathological examination was done by microscope, an instrument regarded at this time to be 'a toy' and not widely used. Grant was examined by a New York surgeon, Dr George Shrady during March, 1885 in joint consultation with Drs Baker and Douglas. Shrady was Editor of the *Medical Record* and after Grant's death, he published in detail the surgical and pathological aspects of the case<sup>5,6</sup>.

Radical surgical removal of the tumour was considered and the steps planned were later outlined in Shrady's writings<sup>5</sup>. The operation would have entailed a wide excision of the tumour approached by splitting the angle of the mandible with resection of the base of tongue and part of the soft palate, together with the involved nodes in the upper neck. The removal of the tumour, Shrady wrote

was considered mechanically possible, despite the close proximity and possible involvement of the tissues adjoining the large arteries and veins but in the best interests of the distinguished patient, the surgeons did not feel inclined to recommend the procedure.

It was felt that the planned surgery did not offer a guarantee of complete tumour removal and that there was a 'risk to life by the severe shock to a constitution already much enfeebled'.

With advancing disease, Grant, well aware of the natural course of the cancerous growth, had great apprehensions that he might suddenly choke in his sleep. After an episode



**Figure 3** General Grant at Mount McGregor. This is the last photograph of Grant, taken 3 days prior to his death. Two basins for expectorations and a towel for clearing secretions can be seen to the General's right. (Reprinted with permission from *The American Journal of Surgery*)

of threatened suffocation on the night of 29 March, Grant took to passing both days and nights in a sitting position with his feet resting on a chair. About this time, the General suffered a severe haemorrhage and nearly died. After this, however, a large portion of the tumour sloughed away making breathing a little easier.

Finding it difficult to speak, Grant communicated with scrap paper in the latter part of the disease. These have been kept safe by the recipients and have given us a record of the General's deep feelings about his disease and imminent death. There were many correspondences between the General and Dr Douglas, who was virtually resident as a member of the Grant family. Douglas cherished these slips of paper and handed them on to his wife who in turn gave them to her cousin, Horace Green. He utilized these privileged notes in his work *General Grant's Last Stand* published in 1936<sup>3</sup>. On 16 June 1885, Grant was moved to Mount McGregor, New York, a small resort village outside Saratoga known for its mountain air (Figure 3). Ulysses S Grant died on 23 July 1885 at 8.01 am, aged 63 years.

His death was surrounded by a cloud of financial embarrassment. A few months prior to the discovery of his cancer, the Wall Street firm of Grant and Ward, in which he was a silent partner, collapsed. Massive fraud by Ferdinand Ward was alleged, Grant being the chief victim. He attempted to save his company by borrowing money but this failed. He lost considerable wealth and property including his war trophies. Urged by his close friend, Mark Twain,

Grant was persuaded to write his memoirs. These he completed 3 days before his death. They were a tremendous financial success and the Grant family later benefited by over \$450 000 in royalties.

### GROVER CLEVELAND

Shortly after his inauguration for a second term of office in May 1893, at the age of 56 years, President Cleveland (Figure 4) sought the opinion of Dr O'Reilly, the White House physician, about soreness of the roof of his mouth. The examination revealed an angry ulceration on the left side of the roof of the mouth. The edges were crater-like and had a peculiar granulated surface. Concerned by what he saw, O'Reilly, promptly took two scrapings of tissue and sent these to the army medical museum, without revealing the identity of the patient. The report noted that while there was no proof of malignancy, the specimens suggested epithelioma. The help of an eminent surgeon of the day and friend of the President's, Dr Joseph Bryant, was summoned. Following examination and reading the pathology report, Dr Bryant told the President 'It is a bad looking tenant. Were it in my mouth, I would have it removed at once...'

Eighteen ninety-three is known by historians as the Panic: a time when the world monetary system based on the Gold Standard was in a perilous state. Cleveland had been re-elected because of his pledge to lead America out of the economic mess. He was a staunch believer in the Gold Standard and it was believed that his strong mindedness was crucial to relieving the crisis. The state of his health was

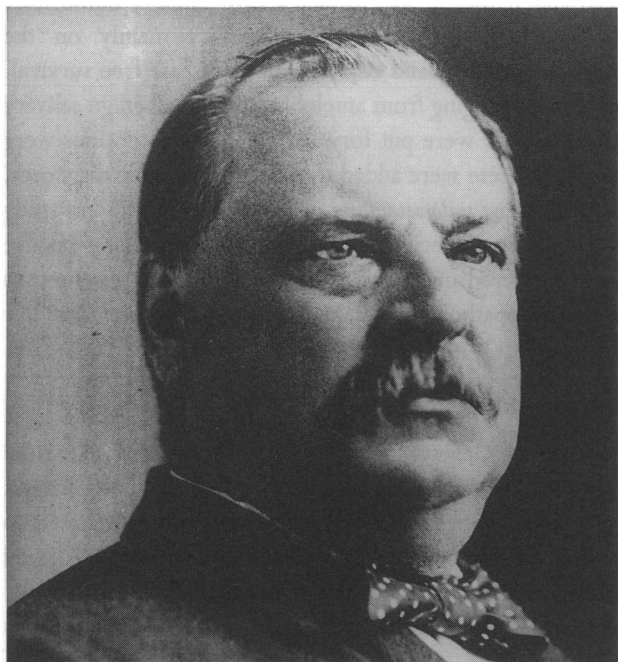


Figure 4 S Grover Cleveland (1837–1908). American President for two terms; 1885–1889 and 1893–1897. (Taken from Durant J and Durant A. *Pictorial History of American Presidents*. New York: AS Barnes and Co, 1958)

therefore critical, as if anything was to happen to him, economic chaos could have supervened. President Cleveland, therefore, received his medical care under the greatest of secrecy<sup>7,8</sup>.

On the evening of 30 June, 1893, Grover Cleveland boarded a trim yacht, *Oneida*, belonging to his close friend, millionaire Commodore Elias C Benedict. Earlier the President had called the summer recess and Congress would re-convene in August. On board the yacht heading from East River towards Buzzard's Bay, was a surgical team headed by Bryant. He called in Dr W W Keen, Professor of Surgery at Jefferson Medical College in Philadelphia. Keen was an outstanding surgeon and pioneer in neurosurgery. His presence was to assure the ultimate in care for the President and also to 'assume responsibility, in part, in the event of a fatality'. A New York dentist, Dr Ferdinand Hasbrouck, was assigned to carry out the anaesthetic and necessary tooth extractions. Other clinicians included were Dr Robert O'Reilly, Dr J F Erdmann, Bryant's assistant, and Dr Edward Janeway, a prominent New York physician. All had taken an oath to keep this operation a secret indefinitely or until the White House officially released the story.

On the following day, the operation was performed in the yacht's saloon which had been converted into an operating room (Figure 5). The surgery performed was that of an intraoral partial maxillectomy. Bryant<sup>9</sup> had published a paper 3 years earlier on 250 cases of hemimaxillectomy, but he himself had only carried out two such cases<sup>10</sup>. The surgeons avoided external incisions. Bone was removed with the chisel from the bicuspid region on the left side as far back as the palatine bone. On removal of the bone, the tumour was seen to be a gelatinous mass and it was thought to be a sarcoma. The growth extended high into the antrum, close to the eye. The whole procedure took 1½ h with only 168 g of blood loss and following resection the wound was packed with iodoform gauze. The success of the operation was in



Figure 5 The secret surgery aboard the *Oneida* yacht. President Cleveland (centre), Edward Janeway (foreground), Ferdinand Hasbrouck, Robert O'Reilly, Joseph Bryant and WW Keen (rear, left to right). Artist's conception of the first operation. Chevalier Fortunio Mantania artist. (By permission and courtesy of Smith, Kline, and French Laboratories)

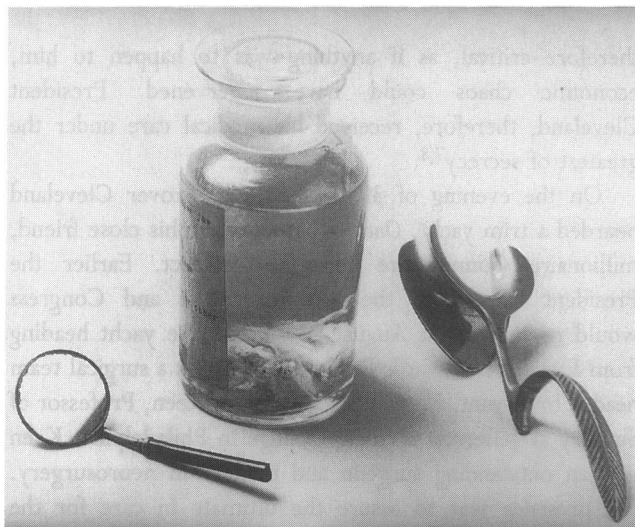


Figure 6 Instruments used (Luer cheek retractor on the right) and specimen resected from the upper jaw of President Cleveland. (By permission and courtesy of the Mutter Museum, College of Physicians of Philadelphia)

part due to illumination of the oral cavity by a mirror-fortified electric light and a Luer cheek retractor which Keen had brought from Europe<sup>11</sup> (Figure 6).

The *Oneida* docked at Buzzard's Bay after sunset on 5 July. Cleveland was in good humour during his early recovery. He was able to speak intelligibly despite a voluminous intraoral packing. Reporters were told that the President had caught cold and was recovering from severe toothache. A further minor procedure was carried out on 17 July, by Drs Bryant, Janeway and Erdmann, using the then new technique of electro-cautery. Shortly thereafter, a

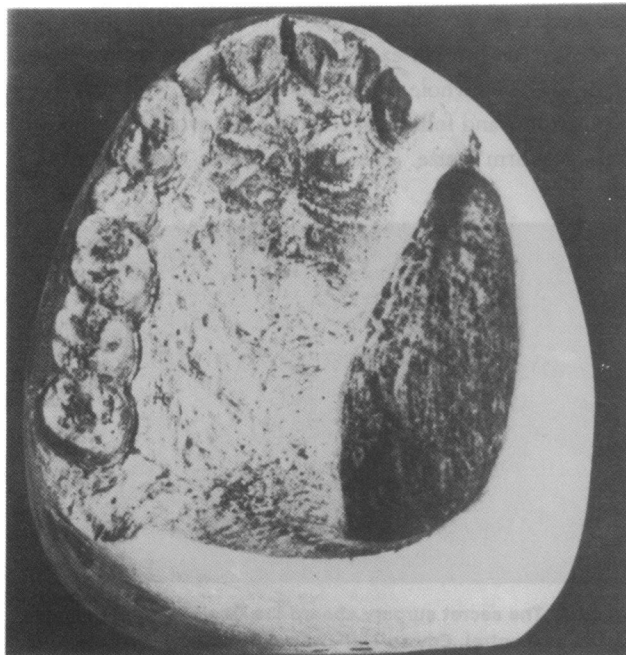


Figure 7 Dental casts of Cleveland's upper jaw taken in 1893. (By permission and courtesy of the Mutter Museum, College of Physicians of Philadelphia)

dentist by the name of Dr Kasson C Gibson, fashioned a vulcanized rubber maxillary obturator (Figure 7). It is reported that this was a well-fitting device and the President's voice returned. Cleveland served his full term of office and had no recurrence of his tumour. He died on 24 June 1908. The death certificate was stated to be 'not accurate', listing heart failure complicated with pulmonary thrombosis and oedema. Other reports stated that he died with intestinal obstruction, the cause of which was not determined. The operation on board the *Oneida* remained a secret until 1917. On 22 September of that year, Dr Keen released his story to the *Saturday Evening Post*<sup>12</sup>.

There were many rumours and possible leaks at the time about the surgery. One, in particular, appeared in the *Philadelphia Press* of 29 August and repeated by the *New York Times*. The three column dispatch was written by 'Holland', the pseudonym of a New York correspondent named Mr EJ Edwards. It is reported that Edwards obtained his information via a doctor who employed Hasbrouck as his anaesthetist<sup>10,13</sup>. Bryant was apparently very upset by this breach of secrecy and never spoke to Hasbrouck again. The story was vigorously denied by the White House, and this was accepted by most of the public.

Some mystery has surrounded the pathology report of the resected specimen. Dr Keen stated that after the operation the diagnosis of sarcoma was 'later confirmed' by Dr William H Welch of the Johns Hopkins Hospital, who had also examined the former specimen. Dr Erdmann, however, writing to Dr Keen states that it was examined by other pathologists and reported as a carcinoma. In 1917, Keen stated that it was in fact a carcinoma<sup>11</sup>. Some later questioned the diagnosis of malignancy mainly on the grounds that Cleveland enjoyed a long disease free survival. Suggestions ranging from ameloblastoma to a benign salivary mixed tumour were put forward<sup>14,15</sup>. As new entities were described, these were added to the list of possible diagnoses, e.g. *necrotizing sialometaplasia* in the 1970s. In 1980, a study of the resected specimen was undertaken to finally resolve the unanswered questions. This group reached a consensus on the histopathological diagnosis of *verrucous carcinoma*<sup>16</sup>.

## DISCUSSION

The case of General Grant is fairly classical of untreated squamous carcinoma of the oral cavity and oropharynx where in the absence of intervention, the tumour expands to involve the surrounding bone, muscles, nerves and blood vessels. The consequences can be devastating for the patient, for example, pathological fractures of the mandible, trismus and/or tongue fixity with concomitant difficulties of swallowing and speech. There may be spread of tumour to the base of skull and brain at which point it may become inoperable with risk of life threatening haemorrhage. The

latter was indeed the situation in the General's case and he wrote of the terrible fates which awaited him:

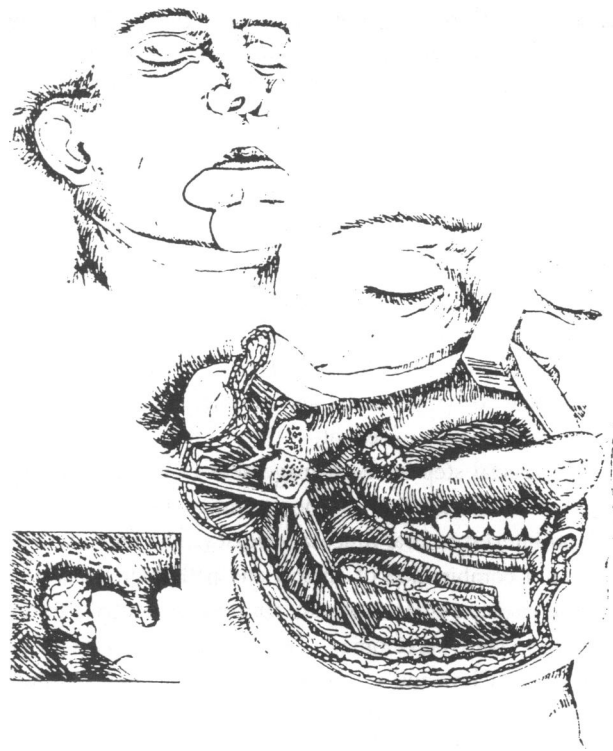
I can feel that my system is preparing for dissolution in three ways: one by hemorrhage, one by strangulation, and the third by exhaustion<sup>7</sup>.

Unabated, carcinoma of the oral epithelium will invariably spread to the lymph nodes of the neck. This is especially true of lesions of the tongue, floor of mouth and tonsillar fossa. Large series of tonsillar fossa carcinomas quote ranges of 38–60% for nodal involvement<sup>17–20</sup>. The commonest site is the ipsilateral upper jugular chain of nodes, as in General Grant's case. Contralateral spread is not uncommon. Metastatic nodal involvement is a poor prognostic indicator.

So what if General Grant were alive today? Is it still gloom and doom for cases such as his? The answer is that there is now a lot to be optimistic about. At the time of Grant's illness, radiotherapy had not yet been conceived. From the early part of this century until about 10 years ago, radiation has been the mainstay of treatment for tumours of the lateral pharyngeal wall without nodal disease. Surgery has been considered too mutilating. Resection by the 'commando' operation has been, therefore reserved for the lateral wall carcinoma with a metastatic neck node and for recurrence following radiotherapy. More recently the situation has changed and surgery may now be considered as primary treatment, with or without postoperative radiation, for a large number of patients with tonsillar fossa carcinomas<sup>18,21</sup>. This is mainly due to the development of improved access procedures and also the ability of reconstruction techniques including microvascular tissue transfer to deliver predictable functional and aesthetic results. Modern imaging techniques, such as CT and MR scanning and Tc<sup>99</sup> MDP scintigraphy, assist in the preoperative assessment of tumour extent and stage.

Very small carcinomas can be removed by tonsillectomy but such circumstances are rare. Larger tumours require greater access and this means an extraoral approach invariably splitting the mandible. The lateral mandibular osteotomy (classically known as the Trotter operation) allows direct access to the tumour. However, it is criticized as it involves sacrifice of the inferior alveolar nerve, and if postoperative radiotherapy is given, there is a risk of non-union. For these reasons, there has been much enthusiasm for the use of a procedure known as the mandibular 'swing' approach<sup>22</sup>: a median mandibulotomy with a paralingual extension. It allows excellent access to the oropharynx and base of tongue (Figure 8).

In 1980, Professor Muhlbauer<sup>23</sup> from Munich visited the People's Republic of China and while in Peking was shown a number of free forearm flaps used in the treatment of burn



**Figure 8** The mandibular 'swing' approach giving excellent surgical access to the oropharynx. Skin shown in upper left insert. Area of resection of tumour in lower left insert

contractures. This flap, now often known as the Chinese flap, has been widely adapted for use in the reconstruction of defects following resection for oro-facial tumours<sup>24</sup>. This fasciocutaneous flap is very versatile and reliable; complete failure occurring in the order of 8–10% of cases<sup>24,25</sup>. It can be combined with bone as an osseo cutaneous flap where there has been resection of the mandible and the resulting reconstruction is more functional compared to previously used distant based flaps such as the pectoralis major myocutaneous flap<sup>26</sup>. Numerous other free flaps, with and without bone, have been described for use following oro-facial tumour resection. They include groin<sup>27</sup>, latissimus dorsi<sup>28</sup>, and fibula flaps<sup>29</sup>. More recent variations have included the use of free jejunum<sup>30</sup> in the oropharynx where a secretory surface and tubular form is advantageous and omentum<sup>31</sup> for large volume soft tissue defects.

The final note of optimism comes from a recent study from the Sloan-Kettering Memorial suggesting that survival for oropharyngeal carcinoma is improving<sup>32</sup>. Using surgery combined with post operative radiotherapy in 70% of cases, there has been an increase in overall 5-year survival rates from 56% to 65% when compared with figures from 10 years previously.

The case of President Cleveland is clearly not a 'typical' or 'classical' case of carcinoma of the mouth. It illustrates the spectrum of different histological types of oral malignancy and their behaviour. Verrucous carcinoma of

the oral cavity is a distinct clinicopathological entity first described by Ackerman<sup>33</sup> in 1948. Similar carcinomas are found in the larynx and cervix. It is an uncommon oral tumour with a frequency of 2–4% of all oral carcinomas<sup>16</sup>. In the oral cavity, the commonest sites are the cheek and palate. The typical clinical presentation is of a painless plaque-like lesion, often present for years, which suddenly appears to grow producing a cauliflower-like growth, exactly as Dr O'Reilly described. What distinguishes this tumour from the more common squamous cell carcinoma, is the low malignant potential. The verrucous carcinoma rarely metastasizes to lymph nodes and seldom invades bone. The prognosis is overall excellent.

The crucial step in the management of these tumours is biopsy and examination of the specimen by a pathologist with an interest in oral mucosal diseases. The final diagnosis rests on a combination of clinical and pathological features. Surgical excision alone is usually curative, in contrast to oral squamous cell carcinoma. The extent of excision of President Cleveland's tumour judged by today's understanding of the disease process, would be considered too radical. However, it is a tribute to the surgeons of the day that he lived free from recurrence for 15 years until his death.

Two points are worthy of mention in President Cleveland's case. First, there has been much speculation for almost a century as to the true histological nature of the lesion. The suggestions ranged from a syphilitic gumma to a benign mixed tumour of the salivary glands<sup>16</sup>. There were a few papers<sup>14,34,35</sup> in the 1970s which suggested a diagnosis known as *necrotizing sialometaplasia*. This is a rare lesion first described by Abrams *et al.*<sup>36</sup> in 1973 which most commonly occurs on the palate and clinically mimics malignancy. Once again the crucial step in management is biopsy and most resolve spontaneously.

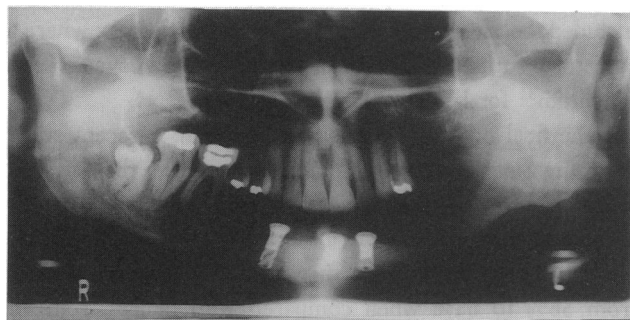
Secondly, if President Cleveland was to undergo a partial maxillectomy today, the method of reconstruction would certainly be different. There has been a move away from the

use of clumsy removable obturators. Maxillary defects can now be reconstructed with either a temporalis muscle flap for small posterior defects<sup>37</sup> or where there is a large volume loss, by a composite osteocutaneous graft. As in the case of lower jaw bone loss, upper jaw defects may be replaced by a free vascularized graft<sup>38,39</sup>. Speech is generally improved and the hideous nasal regurgitation is eliminated. Where bone is included in the graft, osseointegrated implants can be inserted either at the time of primary surgery or at a subsequent date (Figure 9). These techniques provide a more stable and functional foundation upon which to rehabilitate.

## CONCLUSION

The medical histories of two former American Presidents have been previously documented with precision and are reiterated here in a more brief form. Both had oral carcinomas: that of General Grant leading to a somewhat miserable and unpleasant death, while that of President Cleveland was of a far less aggressive nature and it could be argued that it was, in retrospect, surgically overtreated. The hypothetical situation of 'if they were alive today' had been addressed. Both men, if alive today, would hopefully be treated by clinicians trained with a better understanding of the pathology of oral malignancies, aided by modern diagnostic technology and armed with rehabilitation oriented treatment options. The relatively new surgical techniques of microvascular reconstruction for orofacial resections together with osseointegrated implant oral rehabilitation has been highlighted.

*Acknowledgments* The authors would like to thank Mr Alan Jackson, Director of the Department of Medical Illustration, Bolton Hospitals NHS Trust, and Miss Ruth Parson and Miss Jackie Brooks, Medical Artists, for their advice and assistance in the preparation of the illustrations.



**Figure 9** Radiograph of a mandible reconstructed with a composite radial forearm free flap, following tumour ablation. Subsequently, osseointegrated implants were inserted and a partial denture was laid over the implants allowing the patient to return to good masticatory function. A similar sequence of treatments may be applied to maxillary defects

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(Accepted 8 February 1995)