

A historical review of head and neck cancer in celebrities

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Abstract

Introduction: The illnesses of celebrity patients always receive more attention from the general public than those of ordinary patients. With regard to cancer, this fact has helped to spread information about the four major malignancies: breast cancer, prostatic cancer, lung cancer and colorectal cancer. Head and neck cancer, on the other hand, is still not well recognised by the lay public, although the risk factors are similar to those of lung cancer. It was the objective of this analysis to identify cases of celebrity patients, the description of which could help to increase awareness of head and neck cancer, its symptoms and risk factors.

Methods: The Internet and medical literature databases were searched for celebrity patients who had suffered from head and neck cancer.

Results: The search revealed numerous famous head and neck cancer patients. However, only seven cases were documented well in the medical literature. Among the identified persons were one emperor, two United States presidents, a legendary composer, a world-renowned medical doctor, an outstanding athlete and an extraordinary entertainer. In spite of their exclusive position in society, these patients did not have a better prognosis compared with ordinary patients of their time. Only two of the group experienced long term survival and only one was cured. None of these influential figures used their influence to fund research or to promote knowledge about their respective diseases.

Conclusion: The identified cases could help increase public awareness of head and neck cancer. Similar to activities in other oncologic fields, current celebrity head and neck cancer patients should be encouraged to discuss their diseases openly, which could have a positive effect on public health.

Key words: Health Education; Risk Factors; Head and Neck Cancer; Celebrity Patients

Introduction

Public awareness about head and neck cancer and its risk factors is low. For example, Lowry and Craven¹ showed, in a health promotion study among male smokers and alcohol drinkers, that there was a distinct lack of knowledge about oral cancer risk factors. Fabian and co-workers² found that oral cancer patients were aware of the risk factors of their malignant disease in only 14.9 per cent of cases.

Public interest in health issues, on the other hand, may rise if a celebrity becomes affected by a disease.³ The most recent and prominent examples are the breast cancer diagnoses of the singers Sheryl Crowe and Kylie Minogue. Chapman and co-workers⁴ reported that the media coverage of Kylie Minogue's illness led to an increase in breast cancer screening mammograms of about 40 per cent in Australian women. The authors also anticipated that the so-called 'Kylie effect' could be expected to reduce future breast cancer deaths significantly.

Similar events, however, were not observed when George Harrison, former member of the Beatles, was diagnosed with throat cancer in 1997, or when Charlie Watts of the Rolling Stones was diagnosed with laryngeal cancer in 2004. These two examples demonstrate that not only persons of a lower socioeconomic status are affected by head and neck cancer (although the bulk of head and neck cancer patients are clearly derived from this stratum of society).

Advances in the diagnosis and treatment of head and neck cancer have not improved patient survival significantly in the last 30 years.⁵ On the other hand, education about risk factors for cancers of the upper aerodigestive tract, and earlier detection of the tumours, could eventually achieve this goal. More publicity about the devastating effects of alcohol and tobacco smoke on the mucous membranes of the head and neck region could lead to an increased awareness by the lay public, and prominent patients could help to deliver this message. Based on this background, the following review was initiated.

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Methods

The Internet was searched for famous head and neck cancer patients, using the search engines Google and Scholar-Google. Hints on celebrity patients were used to screen medical literature databases. The identified publications were then cross-referenced with the 'related articles' algorithm of the Pub Med database. Using these cross-referenced articles, a very distinguished group of patients was identified. This group comprised one emperor, two United States presidents, a legendary composer, a world-renowned medical doctor, an outstanding athlete and an extraordinary entertainer. In this group of seven, three persons suffered from laryngeal cancers, two from oral cavity cancers, one from oropharyngeal cancer and one from a nasopharyngeal cancer.

The cases will be presented in chronological order, which will also provide historical insight into the development of head and neck cancer therapy over the past century.

Results

The national hero

In early June of 1884, the general and former US president Ulysses S Grant (Figure 1) developed a 'nagging discomfort in his throat'.⁶ Although Grant consulted a physician immediately, the diagnosis was delayed for three months, probably due to denial on Grant's part. His symptoms persisted, and his wife Julia insisted that he see a doctor. Grant



FIG. 1

Ulysses Simpson Grant (1822–1885), president of the United States of America for two consecutive terms from 1869 to 1877.

finally did this in October 1884. Grant's family physician, Dr Fordyce Barker, who had just returned from a trip to Europe, examined the patient and referred him to a 'throat specialist', Dr John Hancock Douglas of New York.⁷ Dr Douglas observed a growth on the right tonsillar pillar and immediately suspected cancer. However, the histological proof was only evaluated several months later, on 18 February 1885, when a biopsy was microscopically examined by Dr George R Elliot.⁷ Steckler and Shedd⁷ state that, at the end of the nineteenth century, the microscope was regarded as a 'toy' and was not widely used in tumour diagnosis.

With regard to risk factors, we know that General Grant was a heavy smoker of cigars. His smoking habit increased considerably after his successful attack on Fort Donelson, when admirers sent him over 10 000 cigars as presents. Although Grant gave most of them away, he smoked more than he would have under ordinary circumstances;⁷ it has been estimated that Grant smoked 12 cigars a day.⁸ It is also fairly certain that Grant had a drinking problem at a certain stage of his career. Some authors believe that this was the cause of his resignation from the army in 1854.^{6,7} During the Civil War, however, Grant's chief of staff, John Rawlins, who was a fervent total abstainer, declared himself to be the 'keeper of Grant's conscience', and it seems certain that Grant did not drink heavily during this period.⁷

Surgery was considered early, and the appropriate operation was outlined by Dr George F Shrady, a renowned surgeon and the editor of the journal *Medical Record*. However, Shrady felt that an operation would be futile⁶ and finally dismissed the option because it was deemed too risky.⁷ Instead, therapy consisted of cessation of smoking, topical iodoform applications, and gargles with salt water, diluted carbolic acid, permanganate, potash and yeast. Additionally a 4 per cent topical cocaine solution was sprayed onto the tumour for pain control. Later in the course of the disease, Shrady and Douglas also visited Grant at home and administered hypodermic injections of brandy and morphine.⁶

Apart from his deteriorating health, Grant had to face a second problem. Grant was the silent partner of the Wall Street firm Grant and Ward. Ferdinand Ward had convinced Grant to invest his good name and money in the business, which collapsed after Ward's massive swindling. Grant lost all his assets and was faced with the fact that his family would be penniless after his death.

Into this dismal scene, Nelson⁶ describes the entrance of another player – Mark Twain, author of the novel *The Adventures of Huckleberry Finn* and owner of the publishing firm Charles Webster and Company. Twain convinced Grant to write and publish his memoirs with his company and offered generous advance payments and royalties. Grant accepted and had a new purpose for living.

Grant started writing feverishly, his efforts propelled by the desire to secure his family's financial status and also by the effects of cocaine, which he received for pain control. His physicians were able to maintain his ability to write with the above

mentioned palliative treatment. Five days after finishing volume two of his memoirs, Grant died at the age of 64 years. Grant is the only US president known to have died from cancer. The memoirs were a huge success; the books earned Grant's estate half a million dollars, a fact that prompted Nelson to entitle his publication 'The final victory of General U. S. Grant'.⁶

Today, there would have been several treatment options which would have improved Grant's prognosis considerably. At the onset of his condition, Grant could have been treated by tumour tonsillectomy, eventually with laser, and with a neck dissection for the already palpable nodes. Primary radiotherapy in combination with chemotherapy would have been an option. Even in the advanced stages, the tumour could have been resected via a mandibular osteotomy. The resulting defect could have been covered with a choice of different musculocutaneous flaps or with free flaps.⁹ According to recent studies, these modern treatments would have ensured an overall long-term survival rate of 65–87 per cent.^{10,11}

However, the end of the nineteenth century was a time when even the most skilled surgeons feared that their operations might be 'a risk to life by the severe shock', as Shradly stated.⁹ With the palliative treatment administered by his physicians, Grant survived for 13.5 months from the onset of his symptoms.

The case of General Grant bears some similarities to the next case, in which the microscope and the delayed decision to operate also played a significant role in the patient's prognosis.

The emperor

The German Emperor Frederick III (Figure 2) was probably the most distinguished patient ever to develop head and neck cancer. Descriptions and discussions of his case have filled many journals and books. Even now, 118 years after his untimely death, the tragedy and the consequences of his disease still occupy the minds of those interested in history in general and in medical history in particular. It is a story as much of political intrigue as of diagnostic failure.¹²

In the autumn of 1886, Frederick contracted an upper respiratory tract infection, following which he suffered from persistent hoarseness. On 6 March 1887, Dr Gerhardt examined Frederick's throat by laryngoscopy and found a 2 × 4 mm nodule on his left true vocal fold.^{13,14} Attempts to remove the mass with a ring knife were unsuccessful. Gerhardt therefore tried to eliminate the lesion with a total of 13 sessions of galvanocautery, from 29 March to 7 April 1887. The patient then spent two weeks in a spa in Bad Ems receiving balneotherapy, which made him feel better.

However, the growth recurred, and when Gerhardt performed a follow-up examination on 15 May 1887 he found recurrent tumour. He therefore consulted Dr von Bergmann, a surgeon, who recommended laryngofissure and resection of the growth. Laryngofissure had been performed since 1830 and was a



FIG. 2

The German emperor Frederick III (1831–1888).

method used (among others) for direct inspection of the vocal folds at that time.¹⁵

When Chancellor Bismarck received knowledge of the Crown Prince's illness, he intervened twice and summoned two separate panels of consultants, asking for their opinions. Both teams suspected a malignancy and recommended removal of the growth via laryngofissure. Surgery was scheduled for 21 May 1887, but it was decided that the operation should be performed in the presence of another laryngologist. Dr Wegener, Frederick's primary physician, suggested that Morell Mackenzie from London should be consulted, an idea which was also welcomed by Frederick's wife Victoria, Princess Royal of Great Britain and daughter of Queen Victoria. Unfortunately, Crown Princess Victoria despised German physicians, whom she blamed for her son's disability. (Her son, William, later Emperor William II, suffered from a palsy of his left arm, the result of a traumatic birth.) Haddad¹⁶ states that it was mainly Victoria's intervention which drew Mackenzie into the drama.

Mackenzie arrived in Potsdam on 20 May 1887 and examined the Crown Prince after consultation with the other attending physicians. Mackenzie confirmed the diagnosis of a growth on the posterior part of the left vocal fold but refused to agree to the scheduled surgery. He felt that the laryngofissure should not be performed without having histological proof of a malignant disease.¹⁶ From a modern perspective,

it can be said that this decision triggered the cascade of unfortunate events which finally resulted in His Imperial Highness' death. Between 21 May and 28 June 1887, four different biopsies were taken under topical anaesthesia with cocaine and the specimens were then examined histologically by Professor Virchow. None of the specimens showed a malignancy. The histological diagnosis of laryngeal cancer was not made until 4 March 1888, when some expectorated sputum was examined by Waldeyer.¹⁷

It can only be speculated as to why the earlier specimens did not reveal laryngeal cancer. The first biopsy was too small because Mackenzie did not have his own, specially shaped instruments with him. The second biopsy failed because swelling obscured Mackenzie's view. The third biopsy produced adequately sized pieces of tissue, but were they truly biopsies of the tumour? Every otolaryngologist who has ever taken a biopsy under local anaesthesia, even with the help of today's modern fibre-optic instruments, knows how difficult it can be to control several instruments and the gag reflex of a patient at the same time. The previous procedures (13 galvanocautery procedures, two biopsies) may have altered Frederick's larynx considerably.

Last but not least, the underlying cause of the disease could initially have been something other than cancer, perhaps tuberculosis, syphilis or a precancerous lesion. At the end of the nineteenth century, the differential diagnosis of laryngeal masses comprised cancer, tuberculosis and syphilis. Laryngeal manifestations of syphilis were fairly common in those days. About 11.5 per cent of the patients who were treated in Mackenzie's hospital in London suffered from laryngeal syphilis.¹⁵ It has been suggested that Frederick had contracted syphilis during the celebration of the opening of the Suez Canal in 1869.¹⁸ However, it was virtually impossible to state publicly that the future emperor of Germany was suffering from a venereal disease. Minnigerode¹⁹ states that this diagnosis had already been suspected by the German laryngologist M Schmidt. However, Schmidt had to withdraw a statement to this effect, which he had made during a meeting of the medical society of the Johann Wolfgang von Goethe University in Frankfurt am Main in November 1887.¹⁹ Laurenson²⁰ shows convincingly that it is very unlikely that Frederick contracted syphilis in Egypt.

Backed up by the negative histological results, Mackenzie recommended conservative therapy with topical applications of iodine and balneotherapy. The Crown Prince and his family therefore travelled to San Remo. However, Frederick's physical state did not improve; on the contrary, his condition worsened.

This progressive deterioration finally convinced Mackenzie that Frederick's laryngeal growth had to be malignant. On 6 November 1887, Mackenzie called a meeting and, after consultation with all of the involved physicians, he finally agreed to recommend laryngectomy. The doctors presented their diagnosis to Frederick and explained the therapeutic options.

Laryngectomy for cancer had first been performed by Billroth 14 years before the onset of the Crown

Prince's disease in 1887.²¹ Coincidentally, Norris Wolfenden²² had just published a report of the first 103 total laryngectomies performed for cancer since the technique had been developed and published. According to this report, laryngectomy could hardly be regarded as a safe procedure. Mortality within the first eight weeks after the operation was almost 40 per cent, the tumour recurrence rate was 20 per cent and only 8.5 per cent of the patients survived longer than 12 months.^{21,22} Dr von Bergmann, the surgeon who had suggested removal of the tumour via laryngofissure at an early stage of the disease, had performed five laryngectomies, but only one of his patients had survived.¹⁵ We do not know whether Frederick was given this information.

Frederick, however, decided against radical surgery, but gave his consent to tracheotomy should it become necessary. Other types of therapy were not available at the time. X-rays had yet to be discovered, and it would be another 25 years before Coutard developed radiation therapy for laryngeal squamous cell carcinoma.²³

On 9 January 1888, a tracheotomy was performed by Dr Bramann, who had performed more than 400 tracheotomies, mostly for diphtheria.¹⁴ Frederick kept his faith in Mackenzie, who continued to be physician-in-charge despite the strong opposition of the German physicians.

On 9 March 1888, Frederick succeeded William I to the throne and ruled the German empire for 99 days until his death on 15 June 1888.

There has been much speculation on what the world would have been like had Frederick ruled for longer. From a medical standpoint, it is clear that the cause of biopsy for the diagnosis of cancer was set back by decades.¹⁴

Virchow and Waldeyer performed an autopsy and found that the greater portion of the larynx was destroyed by a 'large, flat, gangrenous ulcer'. The epiglottis and the left aryepiglottic fold were all that remained of the emperor's larynx, the rest having been consumed by the cancerous growth, which had also metastasised to the left side of the neck.

Pahor²⁴ suggests that Frederick's illness should be considered a verrucous cancer of the larynx. This histological diagnosis is excluded because a cervical lymph node metastasis was present; pure verrucous cancer does not metastasise.

There has been much debate about the risk factors which may have been responsible for the development of Frederick's cancer. Minnigerode¹⁹ states that syphilis was the underlying reason for the development of cancer, but Laurenson¹⁷ refutes this and favours tobacco smoke as the decisive carcinogen. It is fairly certain that Frederick was a smoker; he supposedly began tobacco consumption in his teens and was probably a habitual smoker for more than 30 years. Among other evidence, paintings and photographs exist depicting Frederick with pipe in hand.¹⁷ Frederick probably stopped smoking on the advice of Morell Mackenzie at an early stage of his laryngeal disease. At the end of the nineteenth century, tobacco smoke was not seen as a carcinogen; even Morell Mackenzie, himself a smoker of cigars and strontium cigarettes

(for the treatment of his asthma), believed that excessive smoking did not play a role in the development of Frederick's cancer.^{14,17} From today's standpoint, we must assume that the smoke of Frederick's pipe, as well as passive smoke inhalation, played a considerable role in the aetiology of his cancer. We now know that the development of laryngeal carcinoma is associated with the use of alcohol and tobacco in more than 95 per cent of cases.²⁵

Today, Frederick's prognosis would have been better. We know that the overall five-year survival rate for laryngeal cancer is 68 per cent, considering all stages of the disease.²⁶ Frederick on the other hand, survived barely two years.

Whereas our first two cases were followed closely by the media and the general public, the next case differs due to its secrecy and the fact that timely diagnosis and adequate surgical treatment led to the cure of the patient.

The president and the 'panic'

Stephen Grover Cleveland (Figure 3) was inaugurated president of the United States for his second term on 4 March 1893. His second term was overshadowed by the looming financial collapse of the US government due to the Sherman Silver Purchase



FIG. 3

Stephen Grover Cleveland (1837–1908), president of the United States of America for two separate terms, from 1885 to 1889 and from 1893 to 1897.

Act of 1890. Deppisch²⁷ states that 'heavily indebted farmers and small businessmen advocated the unrestricted coinage of silver, which in turn would lower the value of the US currency and consequently the monetary burden of their debt'. The Sherman Silver Purchase Act mandated that the US Treasury purchase 4.5 million ounces of silver every month, and the treasury notes issued were all redeemable in gold.²⁸ This act resulted in the rapid depletion of the US Treasury gold reserves, at a time when the world financial markets traded on the gold standard alone. Foreign creditors required payment in gold for international transactions.²⁸ These events triggered the 'panic' of 1893, which resulted in the failure of many of the nation's railroads and 642 banks and, as a consequence, mass unemployment.²⁷

During this turmoil, Cleveland noticed an ulceration on his left hard palate. On 13 June 1893, he asked the White House physician, Major Robert M O'Reilly, to examine the lesion. O'Reilly scraped the lesion to obtain some tissue, which was then sent for histological examination to the Army Medical Museum, without revealing the identity of the patient.²⁹ The histological report showed that the tissue was most likely to be from an epithelial malignancy.²⁷ O'Reilly also suggested that Dr Joseph D Bryant, a New York surgeon, be consulted. Bryant examined the patient and took a second biopsy, which proved that the lesion was an epithelial carcinoma.³⁰ Bryant recommended surgical excision of the tumour.

The operation was scheduled for 1 July 1893 as the President had to stay in office until the end of June in order to prevent any suspicion about his state of health. Deppisch²⁷ states that Cleveland's decision to keep his illness and the scheduled operation secret resulted from his firmly held opinion that the national interest was dependent upon the appearance of his continued good health. To ensure maximum secrecy, the operation was performed on board the yacht *Oneida*, which belonged to the president's friend, the millionaire Elias C Benedict. No nurses were present, their functions being accomplished by extra physicians or by crew members.²⁷ Dr Ferdinand Hasbrouck, a dentist, joined the team and was responsible for the necessary extraction of teeth and the induction of anaesthesia. Under general anaesthesia with volatile anaesthetics and the topical application of cocaine, a left-sided transoral partial maxillectomy was performed by Bryant and his assistant Dr J F Erdmann. Within 1 hour and 24 minutes, the operation was completed and the resulting defect was packed with iodoform gauze.²⁹ The president was mobilised on the second post-operative day and left the *Oneida* on 5 July when the yacht docked at its destination in Buzzard's Bay.

This operation, and a second one a few days later, were performed with the help of new instruments: a mirror-fortified electric light, a Luer cheek retractor and an electro-cautery device.⁹ Soon after the second operation, a vulcanised rubber prosthesis, designed by prosthodontist Dr Kasson C Gibson, fitted perfectly into the defect and enabled the president to speak and swallow without impairment.³⁰

The whole treatment was covered up expertly. However, there was a breach of secrecy at the end of August 1893. Brooks and co-workers stated that Hasbrouck, initially involuntarily, leaked the story to colleagues, who informed the press.^{30,31} The resulting article, printed in the *Philadelphia Press*, was immediately denied by the Oval Office. This statement, in connection with Cleveland's seemingly untouched visage, assuaged the fears of the American public.³⁰

After the operation and convalescence during the summer of 1893, Cleveland returned to Washington and succeeded in having the Sherman Silver Purchase Act repealed by Congress in August 1893 and by Senate in October 1893.^{27,30} Initially, economic difficulties remained which made Cleveland quite unpopular. Gradually, however, the US financial situation improved.³⁰

Cleveland survived for 15 years and died in 1908 with no signs of cancer recurrence.

Modern authors argue over whether Cleveland was overtreated.²⁹ However, little was known at the time about the aggressiveness of verrucous squamous cell carcinoma, a type of tumour that had yet to be studied and described by Lauren Ackerman in 1948.^{32,33} There was no doubt that Cleveland's lesion fulfilled all Ackerman's criteria for verrucous cancer.³¹ Based on the histology report and on his knowledge, Bryant therefore performed what he considered to be the safest operation, and who could doubt the result?

The case of the next patient illustrates the different clinical behaviour of a less differentiated squamous cell carcinoma and the ordeal which the patient suffered due to inadequate initial surgery.

The doctor and father of modern psychoanalysis

Sigmund Freud (Figure 4), whose 150th birthday we celebrate this year, was a heavy cigar smoker who had started smoking at the age of 24. His average tobacco intake was 20 cigars a day, and he repeatedly stated that it was smoking which enabled him to work as hard and as long as he did.³⁴ Considering that he became the father of modern psychoanalysis and that his work has helped innumerable patients, we must be thankful for this stimulant. However, for Freud himself, the tobacco addiction unfortunately had other effects that were not so beneficial.

In February 1923, at the age of 66, Freud recognised an ulcerated lesion on his right posterior hard palate, but he suppressed his symptoms until April 1923. Freud showed the ulceration to his doctors and friends Maxim Steiner and Felix Deutsch.³⁵ Steiner and Deutsch immediately recognised the malignant nature of the growth, but decided to conceal their opinion from the patient, who was also suffering from coronary heart disease and depression. Both doctors feared that the diagnosis of an advanced oral cavity cancer would cause suicidal tendencies in their patient and friend. Freud, who secretly felt that the growth was malignant, was disappointed with this treatment and

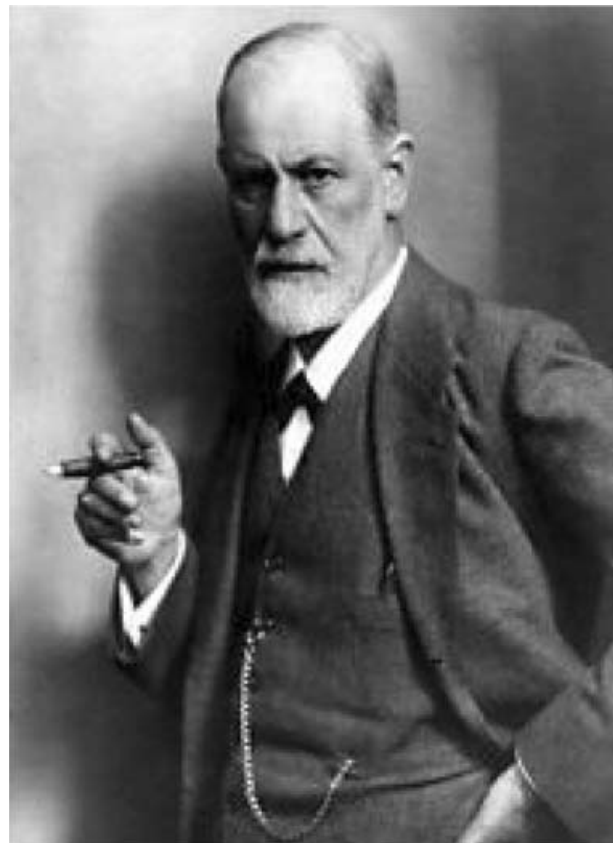


FIG. 4

Sigmund Freud (1856–1939), medical doctor, neuropathologist and founder of psychoanalysis.

decided to consult the otorhinolaryngologist Markus Hajek.

Hajek decided to operate on Freud and removed the lesion superficially without assessing safe margins. He also did not ensure thorough haemostasis, and Freud nearly succumbed to a secondary haemorrhage in the aftermath of surgery. Bankl³⁶ states that Hajek performed an inadequate operation because he deemed his patient a hopeless case. Whatever the reason, the operation and subsequent post-operative management brought no glory for Hajek.

The histological diagnosis of the resected specimen was 'squamous cell carcinoma'. Hajek therefore referred Freud to Guido Holzknacht for radiation therapy. Freud was severely troubled by the side-effects of the surgery and the radiotherapy. He suffered from constant facial pain and significant trismus. Felix Deutsch therefore arranged for Freud to consult Hans Pichler, a famous Viennese surgeon.

On initial examination in September 1923, Pichler found a crater-shaped ulceration on the right side of the hard palate and a palpable lymph node in the region of the submandibular gland. In October 1923, Pichler therefore carried out two operations. In the first, he ligated the external carotid artery to reduce the risk of haemorrhage and removed the submandibular gland and adjacent lymph nodes. Histological analysis of this specimen did not reveal signs

of malignancy.³⁵ In the second operation, Pichler removed most of Freud's right maxilla and part of the mandible containing the lower molars. One additional operation was required in November 1923 to remove residual disease in one margin at the top of the pterygoid process.³⁷

Between October 1923 and September 1938, Pichler performed a total of 33 operations on Freud, among which were operations in 1936 and September 1938 for cancer recurrence.³⁵ After Freud's emigration to London he was living in constant pain, which in the beginning could be treated effectively by a cocaine derivative. In the summer of 1939, Freud developed a fistula between his oral cavity and facial skin secondary to gangrenous tissue. The smell from the necrotic tissue was so unbearable that even Freud's pet dog Chow Lün refused to go near his master. A mosquito net had to be draped over Freud's bed to keep flies from infecting the wound.

On 21 September 1939, Freud asked his personal physician Max Schur to relieve him of his pain and suffering. Dr Schur, who had already promised Freud in 1928 that he would not let him suffer unreasonably, administered two injections of 200 mg morphine within 12 hours, on 22 September. Freud slipped into a coma and succumbed to his advanced malignant disease and the injections which Schur had administered. Thus, it can be argued that Freud's formal cause of death was the morphine injections and that Schur performed an act of euthanasia.^{35,36,38}

However, it seems that Freud's death was more merciful than the end of our next patient.

The musical genius

In February 1924, while working on his opera *Turandot*, the famous Italian composer Giacomo Puccini (Figure 5) developed a sore throat, which he attributed to a prolonged episode of pharyngitis and tonsillitis.³⁹ Puccini liked to smoke cigars and cigarettes and had been a heavy smoker all his life.⁴⁰

Although Puccini consulted several otolaryngologists, the true nature of his complaint was not discovered until he consulted Dr Torrigiani of Florence, several months after the onset of his symptoms. Dr Torrigiani diagnosed a walnut-sized growth on Puccini's epiglottis. A biopsy, taken at the beginning of November 1924, confirmed that it was a cancerous lesion. According to the staging system of the time, the diagnosis was an 'extrinsic cancer of the larynx'.³⁹ Puccini's otolaryngologists advised that he should be referred to Dr Louis Ledoux of the Radium Clinic at the Institut de la Couronne in Brussels.⁴⁰ Ledoux was one of the few specialists in the world to treat laryngeal cancer with radium therapy. Surgery did not seem to be an option for Puccini because, being an artist, total laryngectomy would have debilitated him severely, with a high risk of peri-operative morbidity, especially given Puccini's severe diabetes.³⁹

Radiotherapy was administered using a 'Columbia apparatus', a collar which contained radium, with



FIG. 5

Giacomo Puccini (1858–1924), composer of the operas *Madame Butterfly*, *Tosca*, *La Bohème* and *Turandot*.

radioactive needles which were placed interstitially into the laryngeal tissue.^{39–41} A tracheotomy had to be performed to secure the airway and a nasogastric feeding tube inserted to administer liquids. Puccini suffered severely throughout this treatment. In his letters, he used the words 'torture', 'crucifixion' and 'ordeal' to describe the treatment's effects. After the insertion of the radioactive needles, he stated that he felt as if he had 'bayonets in his throat'.

On the evening of 28 November 1924, Puccini went into heart failure and developed bleeding from the wounds of the radium needles. These were subsequently removed. However, Puccini died the next morning, and Dr Ledoux, who was severely distressed by these events, accidentally and fatally injured a female pedestrian whilst driving home.⁴²

By today's standards, a walnut-sized supraglottic laryngeal carcinoma would be ideally suited to various different therapeutic options (endoscopic supraglottic partial laryngectomy, standard supraglottic laryngectomy and radiotherapy). Puccini's prognosis would have been considerably better, and he might eventually have completed his final opera *Turandot*.

The athlete

The baseball star George Herman 'Babe' Ruth (Figure 6) was an outstanding athlete. In 1927, he scored 60 home runs in one season, a record which



FIG. 6

George Herman 'Babe' Ruth (1895–1948), often described as the best baseball player of all time.

lasted for 34 years. He has often been described as the best baseball player in history.

Despite being an athlete, Ruth had a history of heavy alcohol and tobacco consumption.⁴³ He liked to consume tobacco in the form of cigars and snuff.

In September 1946, Ruth presented to his physician, Dr Philipp MacDonald, with hoarseness and left-sided retro-orbital pain. He was initially treated for sinusitis and had several teeth extracted, but the pain persisted.

In November 1946, Ruth was referred for examination by specialists, who diagnosed left-sided Horner's syndrome and paralysis of the left palate and vocal fold, as well as a weakness of the left shoulder. A plain X-ray of the skull showed a mass at the skull base, extending from the foramen ovale to the jugular foramen.

Radiation therapy was administered without first assessing the histological nature of the growth. The radiotherapy alleviated some of the neurological deficits, but in December 1946 a lump appeared in the left side of Ruth's neck.

Resection of the neck mass was attempted, but the operation was terminated prematurely when it

became evident that the mass encased the carotid artery.

After the operation, Ruth's voice was reduced to a whisper and he was unable to swallow – a feeding tube was required. He received another course of radiation therapy and female hormone therapy.

Despite treatment, Ruth remained in great pain. He was therefore offered the option of experimental therapy with teropterine, a new chemotherapeutic drug. Teropterine was the first folic acid antagonist. It had been discovered in 1942 by Dr Brian L Hutchings of Lederle Laboratories. Ruth had a dramatic response to teropterine therapy. His facial pain and the neck mass disappeared and he gained weight and felt an overall improvement in his spirits.⁴³ This response, however, was temporary, and Ruth's symptoms gradually returned within a year.

In the summer of 1948, Ruth received another course of radiation therapy and gold seed implantations to his neck. This treatment did not stop his progressive deterioration, and on August 16, 1948 at Memorial Hospital in New York City Ruth succumbed to a right-sided lobar pneumonia secondary to his metastatic nasopharyngeal carcinoma.

Ruth never knew that he had cancer, and the true nature and stage of his disease could only be determined by autopsy.⁴³ Ruth suffered from metastatic anaplastic epidermoid carcinoma of the nasopharynx. At autopsy, it became clear that the carcinoma had spread to the left neck lymph nodes, lung, liver and both adrenal glands.⁴³

Today, nasopharyngeal carcinoma would first be definitively diagnosed by biopsy together with extensive imaging studies. The treatment of choice in most parts of the world would be external beam radiation and/or brachytherapy as well as chemotherapy. Nasopharyngeal carcinoma remains difficult to treat because of the proximity of the tumour to radio-sensitive regions such as the eyes and the spinal cord. Involvement of the cranial nerves or the skull base has always been seen as a bad prognostic sign. With modern radiotherapy protocols (i.e. three-dimensional conformal radiotherapy), an overall three-year survival rate of 88.2 per cent has been achieved.⁴⁴ Ruth survived only two years.

The extraordinary entertainer

Sammy Davis Jr (Figure 7) was born on 8 December 1925 in Harlem, New York, to a Puerto Rican mother and Afro-American father. His parents separated when Sammy was two and a half years old and the little boy was raised by his father and his uncle, who educated him in singing, dancing and entertaining. At the age of 18 years, Sammy Davis Jr joined the US Army and served during the Second World War. It was during his military service that he was first confronted with racism, which troubled him for many years. After the Second World War, Sammy Davis Jr became a famous Broadway and motion picture star. On 19 November 1954, he suffered a severe car accident which cost him his left eye. During his time in hospital, Sammy Davis Jr



FIG. 7

Sammy Davis Jr (1925–1990) had his first appearance on stage at the age of four years and became one of the leading entertainers of the twentieth century.

discovered Judaism and converted to this religion. Together with his friends from the ‘rat pack’, Frank Sinatra and Dean Martin, Sammy Davis Jr had huge success as an actor in movies such as *Ocean’s Eleven* and as an entertainer in Las Vegas shows. In 1972, he also had a number one hit in the charts with ‘The Candy Man’.

Sammy Davis Jr admittedly lived a ‘swinger’ lifestyle and consumed considerable amounts of alcohol, cigarettes and cocaine.⁴⁵ These risk factors certainly played a role in the development of the disease which struck him in 1989.

In September of that year, he was diagnosed as suffering from ‘throat cancer’. (On his death certificate, it was mentioned that the underlying disease was laryngeal cancer.)⁴⁶ He received primary radiotherapy, and it seemed that the cancer was under control, until a recurrence was diagnosed in February 1990.

After the diagnosis of tumour recurrence, Sammy Davis Jr deteriorated rapidly. A tracheotomy was needed to secure the airway and nutrition had to be administered via a nasogastric feeding tube, which was not tolerated well.⁴⁵ On 12 March 1990, after spending several weeks in the Cedars-Sinai Hospital, Sammy Davis Jr returned to his home in the Hollywood Hills. In the following weeks, his weight dropped to sixty pounds. Finally, on 16 May 1990,

he succumbed to cardiorespiratory arrest due to gram-negative pneumonia secondary to laryngeal carcinoma.^{45–47} His last appearance on stage was on the night before his radiotherapy for ‘throat cancer’ commenced. Despite therapy, he survived for only nine months following initial diagnosis of the tumour.

Conclusion

In reviewing the histories of these seven famous patients, we have seen how head and neck oncology has evolved over the past 100-plus years. Many of today’s standard diagnostic procedures, such as assessment of histological specimens, endoscopy of the nasopharynx and larynx, and microlaryngoscopy, would have had a beneficial effect in each of these patients. Treatments such as laryngectomy, neck dissection, reconstructive tumour surgery, radiation therapy and chemotherapy, now practised worldwide, would have improved these patients’ prognoses considerably. Had such measures been developed or established at the time, each of our celebrity patients would have been among the first to receive them, even if the procedures had still been at an experimental stage. The social status of these patients ensured that they were treated by the best specialists available.

However, even the best specialists of the day could not avert the fatal disease courses described above. These celebrity patients’ stories were mostly tales of tragedy, misunderstanding, delay and suffering. Such sad results reflected the state of medical knowledge of the time, which lagged far behind today’s standards of care. Over this period of 100-plus years, great advances have been made in the early diagnosis and treatment of head and neck malignancies.

At the turn of the nineteenth century, little was known about the risk factors for head and neck cancer. Therefore, none of our celebrity patients was able to warn the general public about the risks of tobacco and alcohol consumption.

Fortunately, this has changed in recent years. The actor Yul Brynner, for example, was treated in 1983 for a premalignant lesion of his vocal folds. This experience motivated Brynner to establish the Yul Brynner Head and Neck Cancer Foundation in 1984. This foundation sponsors an ‘oral, head and neck cancer awareness week’, which informs the lay public about head and neck cancer and its associated risk factors. Mary Esther Wells, a famous singer who had a number 1 hit in 1964 with ‘My Guy’, was diagnosed as suffering from laryngeal carcinoma in 1990. In 1991, she testified before the American Congress to encourage government funding for cancer research. The examples of Yul Brynner and Mary Wells demonstrate that some celebrity patients manage not only to cope with their own disease but also to use their influence to raise funds for research and to deliver messages for health education. We, as head and neck oncologists, need to be thankful for such commitment.

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