

ORIGINAL ARTICLE

The impact of the cessation of primary dental care services on oral cancer diagnosis at a single institution in the UK's epicentre during the COVID-19 pandemic

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Abstract

Aims: COVID-19 put an unprecedented strain on healthcare services that was complicated by the widespread cessation of all face-to-face primary care dental activity from 23 March 2020 for 7 weeks. This led to a focus on telephone triage and remote prescribing that potentially impeded urgent referrals for suspected oral cancer. Guy's and St Thomas' NHS Foundation Trust (GSTFT) screens and diagnoses potential head and neck cancer patients via a 2-week wait (2 WW) clinic and provides access to patients with urgent oral health needs through an Acute Dental Care (ADC) service. The current service evaluation aims to assess and report on the impact of COVID-19 and the cessation of primary care dentistry on oral cancer diagnosis at GSTFT during a period of time where patients had extremely limited access to healthcare.

Materials and Methods: Data regarding oral cancer diagnoses were collected retrospectively from secure logbooks and clinical records from the point at which routine dental practice was nationally halted (23 March 2020) to the date at which services were permitted to resume (08 June 2020). Individual patient pathways prior to diagnosis and through to treatment were recorded.

Results: Sixteen new diagnoses of oral cancer were made during the described time-frame. Findings suggest that the paralysis of routine dental services resulted in delayed referral of suspicious lesions and highlights the limitations of a predominately telephone-based assessment service in primary care.

Conclusion: The importance of the role of the primary care practitioner in the early identification of oral cancer has been emphasised.

CLINICAL RELEVANCE

- Scientific rationale for study: The cessation of primary care dental services during the first COVID-19 lockdown provided a barrier to clinical assessment. Many dentists resorted to remote triage and telephone services only. This had the potential to delay the screening and referral of patients with suspected oral cancer.
- Principal findings: Remote triage and telephone services are inadequate methods for detecting oral cancer.
- Practical implications: The role of the primary care practitioner in the early identification of oral cancer has been emphasised.

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INTRODUCTION

Since its identification in December 2019, the SARS-Cov-2 virus has spread across the globe and the associated coronavirus disease (COVID-19) has placed an unprecedented strain on the NHS and healthcare systems.

Having been described as 'the greatest challenge faced by the NHS since its creation',¹ the novel nature of COVID-19 has resulted in continuous updates to protocols and guidance throughout the dental profession.²⁻⁴ This understandably created uncertainty amongst clinicians who wanted to provide care for their patients but felt limited or unable to do so.

On 23 March 2020, the Chief Dental Officer for England (CDO) ordered the national cessation of all routine dental care, and aside from a select number of Urgent Dental Care (UDC) centres, general dental practitioners (GDPs) were left to diagnose and treat via the use of telephone triage and the 3As (advice, analgesia and antimicrobials).⁵ This placed the GDP in an unusual situation whereby they were diagnosing and treating patients without having carried out any direct clinical examination or investigations.

GDPs were given permission to reopen their doors to the general public on 08 June 2020.⁶ This resulted in at least a seven-week period whereby telephone triage services and the 3As were the sole methods available for the majority of GDPs to assess and treat their patients.

Guy's and St Thomas' NHS Foundation Trust (GSTFT) is home to a major Acute Dental Care (ADC) service that operated at an enhanced capacity throughout the first COVID-19 lockdown, providing urgent and emergency care to patients from across London and beyond, with the furthest patient having travelled over 150 miles from North East Derbyshire. Patients attended on either a self-referral basis as walk-ins or via the NHS 111 telephone service. Outcomes from over 1500 attendees between the onset and the first peak of the pandemic have been described.⁷ Both self-referral and NHS 111 telephone referral triage services were operated by consultants whereby the severity of the patients' presenting complaints alongside their general health status were assessed for suitability to safely attend the department. Severity of presenting complaint was categorised into *emergency*, *urgent* or *routine* dental need and formed the basis of whether or not a patient was seen for clinical assessment; 66% of patients who telephoned were offered a face-to-face appointment for appropriate assessment and treatment.⁷

ORAL CANCER

Oral cancer has one of the poorest 5-year survival rates (28%–67%) of all cancers.⁸ This is highlighted in contrast

to survival rates for cancers of the prostate (86.6%),⁹ cervix (61.4%),¹⁰ and breast (85%).¹¹ The impact of oral cancer on patients is profound, with treatment often significantly affecting their quality of life.¹² The most common type of oral cancer is squamous cell carcinoma (SCC) which commonly occurs on the lateral borders of the tongue and the floor of mouth.¹³ Guidance from the National Institute for Health and Care Excellence (NICE) reflects the insidious nature and wide variety of presentations of oral cancer, with referral criteria outlined in Figure 1.14

In the United Kingdom, over 6,500 new oral cancer cases are diagnosed each year,¹⁴ and over the last decade, the incidence of head and neck cancers has increased by a fifth.⁸

Owing to the asymptomatic nature of many of the presenting features of oral cancer, many patients present late in their course of disease and as such are associated with a poorer prognosis than would be the case had they presented earlier.¹⁵ This is reflected in the 5-year survival rates for these patients; over 80% for those with early-stage local disease, over 40% for those whose disease has spread to the neck, and below 20% for those who have distant metastases.¹⁶

The role of the GDP and general medical practitioner (GMP) in the early identification of cancerous and precancerous lesions is vital. Regular recalls and examination allow for the identification of any changes in the oral cavity and expedient onward referrals when required.

GSTFT screens and diagnoses potential head and neck cancer patients via a joint oral surgery and oral and maxillofacial surgery-led two-week wait (2 WW) head and neck (HN) service, in line with NHS guidance and stipulated targets.¹⁷ Throughout the COVID-19 pandemic, the service has continued to run as normal on the basis of receipt of urgent referrals, with biopsies being carried out on the day of presentation within the oral surgery department.

AIMS

The current paper aims to assess the impact of COVID-19 and the 7-week cessation of primary care dental services on oral cancer diagnosis at GSTFT during the first wave of the pandemic.

MATERIALS AND METHODS

Data were collected retrospectively from the point at which routine dental practice was nationally halted (23 March 2020) to the date at which services were permitted to resume (08 June 2020). Biopsy reports were identified from a secure logbook and cross-referenced with the associated clinical notes to identify findings of oral cancer during the described

FIGURE 1 NICE oral cancer 2 WW referral criteria¹⁴

Unexplained ulceration in the oral cavity lasting for more than 3 weeks
A persistent and unexplained lump in the neck
A lump on the lip or in the oral cavity consistent with oral cancer
A red or red and white patch in the oral cavity consistent with erythroplakia or erythroleukoplakia

TABLE 1 ADC self-referral patient details

Age	Gender	Smoking	Alcohol	Patient complaint	Examination findings	Diagnosis	Treatment
A 64	F	Nil	Nil	“Gum swelling” next to four teeth Present for 8 weeks Increasing in size Associated continuous throbbing pain.	Large, fluctuant palatal swelling from the UL4 to UL7 and extending to the midline Overlying mucosa normal	High grade B cell lymphoma	Chemoradiotherapy
B 63	M	Ex	Yes	Pain left side of mouth Worse on eating and biting Ongoing for eight months.	Ulcer left floor of mouth	SCC T4N1 M0	Surgery (+/- PORT)
C 50	F	Yes	Yes	Constant pain lower right quadrant Disturbed sleep Associated loose tooth	Right submandibular node enlarged Exposed lingual bone lower right canine region Lower right lateral incisor, canine and premolars grade III mobile	SCC T4N2bM0	Surgery (± PORT)
D 59	M	Ex	Yes	Swelling right retromolar pad Spontaneous bleeding	Ulcerated mass with suppuration right retromolar pad Severe trismus	SCC T4N2bM0	Palliative radiotherapy
E 68	M	Nil	Nil	Facial swelling following extraction of upper incisors	Mild midline facial swelling affecting upper lip Bilateral lymphadenopathy Grade III mobile upper remaining anterior teeth Enlargement of left anterior alveolar ridge raised lesion with well-defined borders extending along anterior hard palate, heterogeneous and hyperplastic appearance	SCC T4aN2 cM1	Palliative radiotherapy
F 72	M	Nil	Nil	Pain on biting Loose tooth upper right quadrant	Spongy swelling extending from upper right first to third molar. Palatal expansion. Bleeding on palpation. Upper right first molar Grade 2 mobile	SCC T4aN2bM0	Surgery + PORT (subsequent recurrence leading to palliative treatment)

TABLE 2 HN referral patient details

	Age	Gender	Smoking	Alcohol	Patient complaint	Examination findings	Diagnosis	Treatment
G	58	F	Ex	Nil	Burning sensation in mouth Two-year duration Worsening	Right palatoglossal fold firm and bled with retraction	HPV positive SCC T1N0 M0	Surgery (±PORT)
H	65	F	Ex	Nil	Nonhealing ulcer right side of tongue	Raised ulcer right lateral border of tongue	SCC T1N0 M0	Surgery (±PORT)
I	84	M	Ex	Yes	Lump left side of tongue	Exophytic mass left lateral border of tongue	SCC T4aN0 M0	Palliative care
J	65	F	Nil	Nil	Nonhealing ulcer left side of tongue Difficult to swallow	Fungating mass left lateral border of tongue, imprecisely delimited	SCC T1N0 M0	Surgery (±PORT)
K	65	M	Yes	Nil	Nonhealing ulcer left side of tongue	Raised ulcer left lateral border of tongue	SCC T4N0 M0	Surgery (±PORT)
L	51	M	Yes	Yes	Two months of pain and difficulty swallowing	7-cm discoid mass obscuring palate	SCC T4N2 cM0	Primary chemoradiotherapy
M	52	M	Yes	Ex	Pain and bleeding from tongue	Indurated ulcer right ventrolateral tongue and floor of mouth	SCC T4N0 M0	Palliative care
N	47	F	Yes	Nil	Painful swelling on tongue for five weeks Increasing in size	2-cm indurated ulcer left lateral border of posterior tongue. Enlarged level 2 node left side	SCC T3N2b	Surgery (±PORT)
O	65	F	Ex	Yes	Painful, bleeding lump inside of right cheek	Exophytic, indurated mass right buccal mucosa	SCC T3N2aM0	Surgery (±PORT)
P	71	M	Nil	Nil	Lump left side of tongue Painful on eating	2-cm exophytic, indurated mass left lateral border of tongue	SCC T4aN2bM0	Surgery (±PORT)

timeframe. Electronic notes for identified cases were further analysed and key components were logged in a secure database made only accessible by the authors at all times. The individual patient pathways prior to diagnosis and through to treatment were recorded.

RESULTS

During the described timeframe, 16 new diagnoses of oral cancer were made within GSTFT. Cases were a combination of ADC self-referrals ($n = 6$) (Patients A–F) (Table 1) and HN clinic referrals ($n = 10$) (Patients G–P) (Table 2).

Of the six patients who attended ADC as self-referrals, all had attempted to access healthcare via telephone ($n = 4$) or face-to-face via GMP/GDP ($n = 2$); 50% had initially been prescribed antibiotics for their oral cancer symptoms prior to them being assessed in ADC. Patient A reported contacting NHS 111 on three occasions, each resulting in the provision of a course of antibiotics, prior to attending ADC 28 days after their initial contact through the telephone service.

On arriving at GSTFT, all patients had a biopsy on the day of presentation. Diagnoses included SCC ($n = 15$) and high-grade B-cell lymphoma ($n = 1$). Treatment included surgical excision with or without post-operative radiotherapy (PORT) ($n = 10$), chemoradiotherapy ($n = 2$), and palliative radiotherapy ($n = 2$). Two of the six patients who self-referred to the department received palliative therapy alone for their oral cancers ($n = 2$).

Regarding timeframes, as ADC operates on a walk-in basis, all self-referrals were assessed on the day of referral; 90% of HN clinic referrals were assessed within 2 weeks ($n = 9$) (Table 3).

DISCUSSION

This report highlights the limitations of a predominately telephone-based assessment service within primary care. GDPs were faced with difficulties in appropriately assessing and managing patients. Considering the patients' presenting complaints (Tables 2 and 3), it is understandable as to why GDPs adopted the 3A approach with the limited resources available at their disposal. Several of the patient-reported complaints are consistent with nonsuspicious pathologies of pulpal or periodontal aetiologies, however, with the additional information gathered from clinical examination, it would have been apparent that urgent 2 WW referrals were appropriate. This draws attention to the potential inadequacies and limitations of a telephone-orientated triage system and the 3As that have the drawback of potentially overlooking sinister presentations.

Following the cessation of all routine dental care with the initiation of the March 2020 lockdown, many patients who were being kept under review for suspicious lesions or premalignant conditions either had their appointments rearranged or conducted via telephone or video platforms.

The inability to both visually inspect and physically palpate suspicious lesions in these situations placed clinicians in a restricted and suboptimal position. Patient B was due a follow-up appointment at another trust to review a suspicious lesion on the floor of their mouth; however, this was cancelled due to COVID-19. The patient attended ADC as a self-referral, whereby a biopsy carried out on the same day was consistent with SCC and the patient proceeded to have surgery with post-operative radiotherapy.

Of the patients referred to the HN clinic, only two were referred by GDPs. Of these two patients, one received palliative care. The remainder of the referrals to the clinic ($n = 8$) were from either GMPs who were still seeing patients, or from other specialties such as ear, nose and throat (ENT). Only one patient from this cohort of referrals was managed palliatively. The lack of referrals from GDPs during this time period provides a cause for concern. Under normal circumstances, a significant proportion of referrals to the department are made from GDPs. The cessation of routine care and face-to-face assessment in the primary care dental setting inevitably led to a reduction in the number of suspected cancer referrals.¹⁸ The importance of early detection of oral cancer is well-recognised and the lack of GDP referrals received by the department suggests that the paralysis of primary care dentistry resulted in delayed identification and referral of suspicious pathology.

Regarding the patient who exceeded the two-week target for HN clinic assessment (Patient P), it was noted that they had previously undergone biopsies of the lesion at another trust which demonstrated moderate dysplasia. This patient was referred onward to GSTFT for a second opinion, when after assessment and close monitoring, a third biopsy of the area was deemed appropriate. This lesion had then transformed into a squamous cell carcinoma. All remaining referred patients ($n = 9$) were seen within the suggested window, highlighting that patients were generally able to access the healthcare they required at an appropriate time despite widespread disruptions to access in response to the pandemic.

TABLE 3 HN referral patient timeframes

Patient	HN referral to clinical assessment (days)
G	13
H	6
I	0
J	7
K	6
L	5
M	12
N	4
O	2
P	20

Age 70 or older
Pregnant
Lung conditions e.g. asthma, COPD, emphysema or bronchitis
Heart disease e.g. heart failure
Chronic kidney disease
Liver disease e.g. hepatitis
Conditions affecting the brain and nerves e.g. Parkinson's disease, motor neurone disease, multiple sclerosis (MS), a learning disability or cerebral palsy
Diabetes
Conditions affecting the spleen, e.g. sickle cell disease, or spleen removal
Immunosuppression e.g. HIV and AIDS, systemic steroid use or chemotherapy
BMI of 40 or above

FIGURE 2 Medical condition screening list used to determine vulnerable patients. This list was not exhaustive, and clinical judgement was used for additional medical conditions²⁰

The initiation of a national lockdown understandably fostered anxiety amongst the general public with regard to attending public places and services, including healthcare providers.¹⁹ In order to protect those most vulnerable from COVID-19, Public Health England (PHE) released guidance as to what categorised a patient as clinically 'vulnerable' (Figure 2).²⁰ Of the 16 oral cancer patients described within this paper, 10 were accordingly categorised as vulnerable to severe disease from COVID-19. Whilst it is impossible to ascertain as to whether this designation impacted these patients and their ability or decision to seek healthcare on either a conscious or subconscious basis, it can be suggested that those patients defined as vulnerable may have been more cautious with regard to leaving their homes in order to access such services. Hesitance to seek healthcare opinion in the vulnerable cohort may have contributed to a nationwide drop in urgent referrals for suspected cancer, which fell by 75% in England during this period.¹⁸ This may also be attributed to by the widespread paralysis of primary care dental services and lack of access points for patients to seek urgent care in an appropriate timeframe. This was particularly challenging during the initial phase of the crisis due to delays in the establishment of local UDCs. Collectively, these factors can lead to a significant delay in the diagnosis of oral cancer and potentially result in poorer outcomes. Indeed, of the patients who self-referred via the ADC service at GSTFT, all patients diagnosed with an SCC had a T4 tumour with lymph node involvement.

Despite the recent announcement of another national lockdown from 04 January 2021²¹ in response to unprecedented cases of COVID-19 transmission,²² the role of the primary care dental practitioner has not again been paralysed and clinicians are able to continue seeing patients on a routine basis.²³ Of greater concern is that due to unparalleled strains on healthcare services in London, certain trusts have cancelled some urgent cancer operations.²⁴ As events continue to unfold following the imposition of a new lockdown, it remains unclear if further oncology services will be disrupted. Fortunately, however, the GDP can responsibly screen and refer patients in the absence of barriers to access which is essential now more than ever considering the potential delays oncology patients may face in secondary care.

CONCLUSION

COVID-19 and the first national lockdown resulted in an unprecedented and widespread cessation in healthcare services and posed a challenge in ensuring patients with urgent clinical needs were referred and treated appropriately. Without clinical examination, it is impossible to exclude sinister pathology from a patient's reported history and they may therefore experience a delay in diagnosis and management of malignant findings.

Whilst telephone triage and remote prescribing have no doubt been utilised effectively in certain cases during this time, the importance of the role of the primary care practitioner in the early identification of oral cancer has been emphasised and at the very least, the authors suggest video consultation services should be adopted if face-to-face assessment is not possible or appropriate.

With greater knowledge on high-risk procedures in dentistry and the substantial reduction in suspected cancer referrals from primary care services, it can be suggested that readily accessible face-to-face triage with appropriate personal protective equipment remains at the forefront of primary care triage during times of further crisis. This is clearly critical in identifying and managing sinister cases in a timely manner.

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