

Main Article

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Abstract

Background. The coronavirus disease 2019 pandemic led to increased pressure on health services, which, combined with variable social restrictions, led to decreased referrals for head and neck cancer. This study assessed whether there were lasting changes to head and neck cancer referrals during different stages of the pandemic response in 2020 and 2021.

Methods. A retrospective review was conducted of all cases referred for suspected head and neck cancer to our institution in January 2020, April 2020, April 2021 and June 2021.

Results. There was a rebound 91 per cent increase in referrals between April 2020 and April 2021 following the 59 per cent decrease in referrals between January 2020 and April 2020. Males made up 47.1 per cent of referrals in January 2020, 40 per cent in April 2020 and 37.82 per cent in April 2021.

Conclusion. Further research is recommended to investigate the reasons why there is a continued decline in male referrals and the effect this has on their outcomes.

Introduction

The severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) novel coronavirus strain that causes the disease coronavirus disease 2019 (Covid-19) has had a devastating impact across the world, with an estimated 540 million cases worldwide, causing 6.3 million deaths, as of 21 June 2022.¹ In order to minimise the impact of this highly contagious virus, the UK government implemented a series of public lockdowns, to limit social contact and prevent rapid spread of the virus, between March 2020 and July 2021. The main aims of the lockdowns were to prevent the National Health Service (NHS) from being overwhelmed with Covid-19 patients and to ensure all could be treated. These restrictions varied in severity throughout the following 18 months. Along with lockdown restrictions for the public, the NHS cancelled routine treatments and focused solely on emergency and cancer work during this period. General practitioners had to change from face-to-face reviews of patients to increasingly using telephone and video reviews, to prevent the risk of transmission. This made it more difficult for elderly patients to access care.^{2,3}

Initially, with only cancer care, and emergency and lifesaving work being implemented, and with the associated difficulty in accessing general practitioners, research showed a decrease in head and neck cancer referrals, particularly in the older age groups, with a smaller decrease in the male population.⁴ This research focused on the initial period after the first lockdown in April 2020, compared to pre-lockdown outcomes. Without any elective care taking place in April 2020, research showed that patients were being seen quicker and diagnostic tests were performed faster than before lockdown, and the diagnostic yield of cancers actually increased.

In the time following this research period, the laws regarding lockdown restrictions altered on numerous occasions and varied within the UK countries. Despite the varying lockdown laws, the NHS tried to recover elective care in order to prevent excessive delays and to ensure timely elective treatments.

This study aimed to assess whether, following the initial lockdown, there have been any long-lasting changes in the health-seeking behaviours of patients with potential head and neck cancer. This was attempted by comparing the practice in: January 2020, pre-pandemic; April 2020, during the first lockdown of the pandemic; April 2021, with the easing of previous restrictions to allow non-essential retail and indoor leisure activities to reopen; and June 2021, when all social distancing rules were removed. The study further aimed to assess whether, once elective care was re-established but some lockdown restrictions persisted, our Trust managed to maintain its cancer care targets. Finally, it aimed to assess whether the decreased number of referrals for head and neck care during the initial phase of the pandemic led to more advanced tumours presenting subsequently.

Materials and methods

We conducted a retrospective review of all cases referred for suspected head and neck cancer to the ENT fast-track clinic at our institution during the months of January 2020,

April 2020, April 2021 and June 2021. Referral details were obtained from our electronic referrals system. Data on demographics, investigations and management of patients were collected from our electronic patient record system. Practice was compared against the UK head and neck cancer multidisciplinary guidelines.

Results

Referrals and cancer diagnoses

There was a 55 per cent decrease in referrals from January 2020 to April 2020, but referrals in April 2021 and June 2021 only decreased by 14 per cent and 16 per cent respectively compared to January 2020 (Table 1). The average wait for a first review was 6.3 days in January 2020 and 7.29 days in April 2020, rising to 11.92 days in April 2021 and 9.48 days in June 2021. The proportion of patients being reviewed within their 14-day target time was consistently high, with 97.83 per cent prior to the pandemic, 98.33 per cent during the first lockdown, 94.96 per cent in April 2021 and 98.29 per cent in June 2021.

The referral to treatment target time of 62 days was met in 100 per cent of patients in all four time periods, as was the decision to treat to treatment target time of 31 days. The number of patients discharged at first review prior to the pandemic was 63.04 per cent, rising to 75.8 per cent in April 2020, but returning to pre-pandemic levels with 52.94 per cent in April 2021 and 61.21 per cent in June 2021. The diagnostic yield during the initial pandemic was higher at 8.06 per cent compared to 2.9 per cent pre-pandemic, decreasing to 4.17 per cent and 5.13 per cent for April 2021 and June 2021 respectively.

Other common diagnoses

Laryngopharyngeal reflux was the most common diagnosis in April 2020, accounting for 42 per cent of referrals to the fast-track head and neck service, compared to 27 per cent pre-pandemic. A year later, this had dropped significantly to 15.8 per cent in April 2021 and 5.13 per cent in June 2021. In comparison, other benign diagnoses rose significantly, from 24 per cent pre-pandemic and in April 2020, to 50.91 per cent in June 2021. The proportion of patients with no abnormality detected fell from 11 per cent in January 2020 to 7 per cent in April 2020, and decreased to 4.3 per cent in June 2021.

Table 1. Overview of referrals to fast-track clinic*

Parameter	January 2020	April 2020	April 2021	June 2021
Referrals (n)	138	62	119	116
Average wait for 1st review (days)	6.3	7.29	11.92	9.48
Patients seen within 14 days (%)	97.83	98.33	94.96	98.29
Patients discharged at 1st review (%)	63.04	75.8	52.94	61.21
Malignancies (%)	2.9	8.06	4.17	5.13

*Comparison of total referrals, two-weeks-wait target compliance and proportion of patients with malignancy diagnosed.

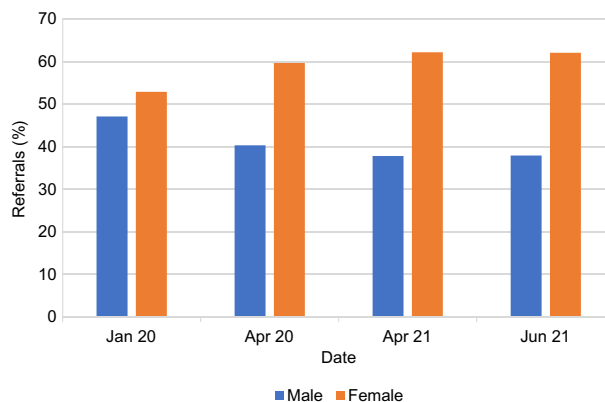


Fig. 1. Comparison of proportion of referrals by sex in January 2020, April 2020, April 2021 and June 2021.

Demographics

Males comprised 47.1 per cent of pre-coronavirus referrals, decreasing to 40 per cent of referrals in April 2020. This decline continued to 37.82 per cent and 37.92 per cent in April 2021 and June 2021 respectively (Figure 1).

There was a noticeable fall in those aged over 80 years being referred, down from 9.42 per cent pre-pandemic to 3.23 per cent in April 2020. This rate of referral, however, recovered to 7.56 per cent in April 2021 and 9.48 per cent in June 2021 (Figure 2).

Thyroid

Prior to the first Covid-19 lockdown, 41 per cent of patients were having thyroid function tests performed by their general practitioner prior to referral. In April 2020, this dropped to 0 per cent, before increasing to 7.69 per cent in April 2021 and June 2021.

The rate of referral for patients with at least one ‘red flag’ symptom of thyroid malignancy rose from 65 per cent to 100 per cent from January 2020 to April 2020, before decreasing to 92.31 per cent in April 2021 and declining further to 76.92 per cent in June 2021.

The wait for investigations improved from 7.58 days for ultrasound scanning in January 2020 to 1 day in April 2020, before returning to pre-pandemic levels in 2021, with waits of 7.27 and 5 days respectively for April 2021 and June 2021. Patients requiring fine needle aspiration rose from 12

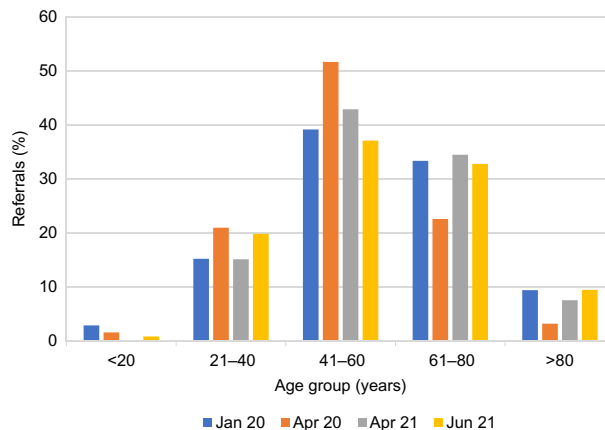


Fig. 2. Comparison of proportion of referrals by age in January 2020, April 2020, April 2021 and June 2021.

per cent of referrals pre-pandemic to 50 per cent in April 2020, and remained raised at 30.77 per cent in April 2021 and 46.15 per cent in June 2021.

The proportion of patients referred who were diagnosed with thyroid malignancy increased from 5.88 per cent pre-pandemic to 50 per cent in April 2020. This fell to 0 per cent in April 2021 and 7.69 per cent in June 2021.

Neck lumps

The most common investigation of choice for neck lump referrals prior to the pandemic was ultrasound scanning, with 91 per cent of patients in January 2020 having an ultrasound scan, falling to 60 per cent of referrals in April 2020. In April 2021, this rose to 100 per cent of patients and 83.33 per cent in June 2021. The wait for ultrasound scanning remained consistent in 2020, with waits of 5.7 days and 5.3 days for January and April respectively, rising to 8.25 days in April 2021 and falling to 4.83 days in June 2021.

The proportion of patients requiring fine needle aspiration was 30 per cent in January 2020, rising to 60 per cent in April 2020, and remaining at similar levels in 2021, with 50 per cent in April 2021 and 66 per cent in June 2021 requiring fine needle aspiration cytology.

Nine per cent of patients were investigated with magnetic resonance imaging (MRI) in January 2020, rising to 20 per cent in April 2020, and remaining raised at 12.5 per cent in April 2021 and 16.67 per cent in June 2021. The wait for MRI remained fairly consistent, with a wait of 4 days in January 2020, 6 days in April 2020, 9 days in April 2021 and 3 days in June 2021.

The proportion of cancer diagnoses from referrals in January 2020 was 18 per cent, rising to 40 per cent in April 2020, and falling to 0 per cent in April 2021 and June 2021.

Discussion

The number of referrals has now rebounded to close to pre-pandemic levels, with 138 referrals pre-pandemic, dropping to 62 in April 2021, and rising back to 119 in April 2021 and 116 in June 2021 (Table 1). This indicates that, despite partial restrictions of social activities in April 2021, patients were still willing and able to seek healthcare advice when necessary. When these patients were referred, we have shown there was an increased time in waiting for their first review, with an average wait of 6.3 days in January 2020, rising to 7.29 days in April 2020 and 11.92 days in April 2021, before slightly decreasing to 9.48 days in June 2021. Whilst the delay in April 2020 could be a result of redeployed staff and the increase in time taken in out-patient clinics for disinfection after reviewing patients, the increased delays in April 2021 are less likely because of this, as staff were all back working in their relevant specialties, and out-patient clinics had been running for several months at this time. A likely cause of the increased delay is the requirement for hospitals to restart routine clinics with their large backlogs, which may have limited the time and space available to see patients with suspected malignancy.

Demographic analysis of the referrals shows a continued decrease in referrals for male patients. In January 2020, males comprised 47.1 per cent of referrals, which decreased to 40 per cent in April 2020. In April 2021 and June 2021, this fell to 37.82 per cent and 37.92 per cent of referrals respectively (Figure 1). This contrasts with the known incidence of head and neck cancer, with 69 per cent of head

and neck malignancies being diagnosed in men.⁵ This continued decline in the proportion of male referrals is unexpected, as, with the relaxation of social restrictions, there were fewer reasons for men not to seek healthcare advice. Potential theories to explain this finding include: the idea that the Covid-19 pandemic continued to put some of the male population off seeking healthcare; the fact it has become less routine to access healthcare advice after it was not easily accessible for a period of time; and economic worries after the social restrictions had eased, leading to a greater focus by males on work than their health.

Examination of referrals by age showed a rebound in referrals for those aged over 80 years, dropping to 3.23 per cent in April 2020 and increasing to 9.48 per cent in June 2021 – similar to pre-pandemic numbers. There was already evidence of the rebound in referrals by April 2021, with 7.56 per cent referrals at that time being aged over 80 years, suggesting that the stricter social restrictions in place at that time did not deter health-seeking behaviours in this population (Figure 2). This may be because, by April 2021, those aged over 80 years had received at least one dose of the Covid-19 vaccine, potentially making them more willing to see their general practitioners.

There was a large increase in the diagnostic yield of malignancies from January 2020 (2.9 per cent) to April 2020 (8.06 per cent), which we hypothesised previously as being due to a decreased number of ‘worried well’ patients attending general practitioners and only those patients with serious concerns attending. With the easing of social restrictions, we have recorded the subsequent rise of referrals from the low of April 2020, and with that a decreased yield in keeping with an increased number of ‘worried well’ patients now seeking medical attention, although the yield in April 2021 (4.17 per cent) is still higher than the pre-pandemic level, suggesting there may be a slight backlog in patients with cancer who delayed seeking help during tighter social restrictions now coming forward. If this were the case, we would likely be seeing more advanced malignancies being diagnosed. There is tentative evidence of this in the tumour grades of malignancies diagnosed at our hospital, with the most advanced tumours in January 2020 and April 2020 being tumour–node stage of T₂N₂; however, in April 2021 and June 2021, there were two malignancies diagnosed at T₄N_{2b} and a further two tumours at T₃N_{2b}. This is a very small sample, and further assessment of data would need to be carried out over a much larger population to assess this more accurately.

Referrals for suspected thyroid malignancy have shown a significant drop in diagnostic yield since April 2020, falling from 50 per cent of patients at that time to 7.69 per cent of patients in June 2021. This diagnostic yield is comparable to that of January 2020 (5.88 per cent), suggesting that the increase in referrals is picking up more of the ‘worried well’. The British Thyroid Association guidelines state that general practitioners should perform thyroid function tests for all suspected thyroid malignancy patients; in January 2020, this happened for 41 per cent of referrals. In April 2020, this was 0 per cent, as general practitioners were not seeing patients face-to-face; with the easing of restrictions, this remained low, at 7.69 per cent in April 2021, suggesting that despite guidelines and face-to-face appointments being reinstated, thyroid function tests were rarely being ordered by general practitioners. This could be because of a lack of practice staff available for blood tests or may reflect attempts to minimise the number of patients visiting the surgery.

The most noticeable change for patients referred with neck lumps is the selected investigation of choice. In January 2020, 91 per cent of patients had an ultrasound scan and 9 per cent underwent MRI. During April 2020, this changed to 60 per cent being referred for ultrasound scanning and 20 per cent for MRI. This is likely because of the prevalence of telephone clinics during April 2020, making cross-sectional imaging seem the safer choice for clinicians. However, with the increase in face-to-face appointments in 2021 and the opportunity to perform clinical examinations, the rate of MRI dropped to 12.5 per cent for patients in April 2021, showing a decreased reliance on and indication for cross-sectional imaging.

- The number of referrals for suspected head and neck malignancy has risen to close to pre-pandemic levels
- The number of those aged over 80 years being referred has notably increased compared to April 2020 when strict social restrictions were first in place
- The number of male referrals continued to decline despite the easing of social restrictions
- Head and neck cancer services at our institution continued to meet 14-, 31- and 62-day target times throughout times of changing social restrictions
- More research is required to establish why male referrals are declining despite the easing of social restrictions

Conclusion

Overall, we can see that referral numbers had risen back to pre-pandemic levels by April 2021, despite the ongoing social restrictions at this time, with particular resurgence in the number of over 80-year-old patients referred, even with the social restrictions and high risk of Covid-19 at that time. We speculate that the Covid-19 vaccination allowed patients to start seeking healthcare more freely and safely at this time.

We do, however, report an ongoing drop in male referrals, which has continued despite the easing of social restrictions. We speculate this could be due to changes in healthcare-

seeking behaviours after the pandemic or economic issues not leaving sufficient time to seek healthcare. This is of particular concern given the increased incidence of head and neck cancer in the male population compared to females, which could lead to delayed diagnoses.

Notably, even with the changes in referral patterns throughout various social restrictions, the 14-day target to review patients from referral was consistently high, being over 94 per cent in all four time periods, and all four time periods showed 100 per cent compliance with 31- and 62-day targets.

We suggest that further research is required to examine male health-seeking behaviours since the pandemic, and to determine whether this has led to an increase in cancer staging and worse outcomes for males. We also suggest further research to assess whether this change in behaviour is seen in other specialties and to explore whether it affects male health across the spectrum.

Competing interests. None declared

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