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Rethinking the 'one-stop' neck lump clinic: a novel pathway beyond coronavirus disease 2019

A Hariri[1], S Jawad[2], S Otero[2], M Lechner[1], S Morley[2], T Beale[2], J Hughes[1], P Stimpson[1], R Dwivedi[1] and F Vaz[1,3]

[1]Head and Neck Centre, University College London Hospitals NHS Trust, London, England, UK, [2]Department of Imaging, Royal National ENT and Eastman Dental Hospitals, University College London Hospital NHS Trust, London, England, UK and [3]Canterbury Christchurch University, Canterbury, England, UK

Main Article

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Author for correspondence:
Mr Ahmad Hariri, Head and Neck Centre, University College London Hospitals NHS Trust, 235 Euston Rd, London NW1 2BU, UK
E-mail: ahmad.hariri@nhs.net

Abstract

Objectives. UK guidelines advocate 'one-stop' neck lump assessment for cancer referrals. This paper reports the pilot of a novel pre-clinic ultrasound pathway, presents outcomes, and discusses strengths and limitations in the context of the coronavirus disease 2019 pandemic.
Methods. Two-week-wait cancer referral patients with a neck lump were allocated a pre-clinic ultrasound scan followed by a clinic appointment. Demographic, patient journey and outcome data were collected and analysed.
Results. Ninety-nine patients underwent ultrasound assessment with or without biopsy on average 8 days following referral. Patients were followed up on average 14.1 days (range, 2–26 days) after initial referral. At the first clinic appointment, 45 patients were discharged, 10 were scheduled for surgery, 12 were diagnosed with cancer, 6 were referred to another specialty and cancer was excluded in 19 patients. Retrospectively, four ultrasounds were performed unnecessarily.
Conclusion. Pre-clinic ultrasound scanning is an alternative to the one-stop neck lump pathway. This study demonstrates fewer clinic visits, faster diagnosis and a low proportion of unnecessary scans, whilst minimising face-to-face consultations and aerosol-generating procedures.

Introduction

Current UK government targets require that a patient wait a maximum of 14 days between primary care referral and being seen by a hospital specialist.[1] Figures from NHS England showed that between July and September 2018, the two-week cancer target had been missed for the first time. A target to start treating 87 per cent of cancer patients within 62 days of referral has been missed for 19 successive quarters.[1] The bottleneck occurs primarily because of a lack of diagnostic capacity.[1] Given the new standards introduced in April 2020 that require patients with suspected cancer to receive a diagnosis within 28 days of referral, these pressures are only likely to increase.[1] Adding to this, head and neck cancers are predicted to continue rising in England by over 50 per cent in the next five years.[2]

Neck lump is a first presentation of head and neck cancer in approximately 13 per cent of patients. The 'one-stop' neck lump clinic was recommended by the National Institute for Health and Care Excellence (formerly the National Institute for Clinical Excellence) (NICE) in 2004, in an attempt to improve outcomes (Figure 1).[3] These clinics aim to provide clinical, radiological and cytological assessment for a patient with a suspicious neck lump, in a single attendance. Outcomes have been encouraging, with most patients either discharged or a cancer diagnosis made at the first appointment.[4] However, in its current format, a true one-stop neck lump clinic can be difficult to staff and maintain. This has led many institutions to opt for a different approach in managing neck lump referrals.[5,6]

The originally described one-stop clinic also advocated for flexible nasoendoscopy, a potential aerosol-generating procedure (AGP), in all patients prior to ultrasound. The coronavirus disease 2019 (Covid-19) pandemic has added further pressures on cancer services with a need to decrease face-to-face interactions and perform fewer AGPs where possible.

We describe a pilot neck lump pathway that maximises the use of current resources and facilities, improves patient outcomes, and delivers an efficient and timely cancer service.

Materials and methods

A dedicated 'one-stop' neck lump clinic that conforms to the NICE 2004 guidelines is not available in our institution. Instead, head and neck clinics have access to a same-day

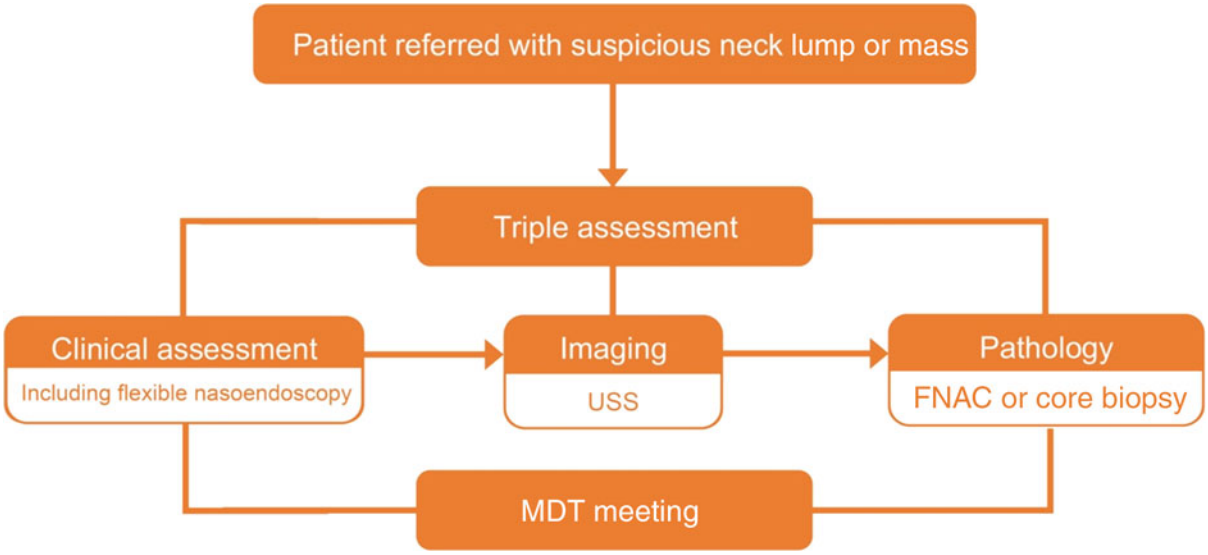

Fig. 1. Original 'one-stop' neck lump clinic pathway. USS = ultrasound scan; FNAC = fine needle aspiration cytology; MDT = multidisciplinary team

walk-in consultant-led ultrasound service, with provisions to perform fine needle aspiration (FNA) and core biopsy. This functions alongside a one-stop 'triple imaging' cancer staging service, which we have described previously.[7]

The new 'neck lump pathway' involved identifying patients referred with a suspicious neck lump. Referrals are vetted by dedicated head and neck administrative staff, cancer nurse specialists, and specialty head and neck registrars. Eligible patients were allocated to one of eight consultant radiologist led ultrasound slots per week, where patients underwent diagnostic ultrasound and FNA or core biopsy, if required. Patients were then seen in a head and neck clinic by a surgeon, where they were examined and informed of their imaging and pathology findings. A management plan was subsequently agreed. Patient information was recorded prospectively, with outcomes collected retrospectively and analysed. Figure 2 summarises the pathway.

Results

A total of 117 patients were identified as being referred with a suspicious neck lump between March 2018 and June 2019. All were offered an ultrasound scan by way of a telephone call, and all confirmed their willingness to attend. Eighteen patients failed to attend and were offered a repeat appointment but were excluded from the study. The remaining 99 patients underwent ultrasound assessment, performed by a head and neck consultant radiologist on average 8 days (range, 1–21 days) after referral.

Ninety-four per cent of our patients were seen within the two-week referral target time. Thirty patients had a biopsy at the same time as ultrasound assessment; 16 of these were core needle biopsies and the remainder were FNA cytology procedures. Overall, patients were followed up in clinic 14.1 days (range, 2–26 days) after initial referral. On average, the time from referral to diagnosis was quicker for patients with suspected malignancy on ultrasound (mean of 9.7 days).

A positive impact was considered where a diagnosis or change in pathway was reached at the first surgical appointment. This was achieved in 92.9 per cent of patients. At the first surgical appointment, 45 patients were discharged, 10 were scheduled for surgery, 12 patients were diagnosed with cancer, 6 patients were referred onwards to another specialty, and 19 patients were taken off the cancer pathway and followed up routinely. On the previous pathway, these patients would have required at least 92 additional appointments to account for the initial clinical review prior to the ultrasound scan.

Seven patients did not benefit from the pathway. Of these, four patients were retrospectively found to have inaccurate referrals that, following history-taking and examination, did not warrant ultrasound investigation and thus received an additional unnecessary appointment. Additionally, a repeat ultrasound was inadvertently requested for one patient, and two patients were reviewed prior to their biopsy results being available and were thus required to return for the results. The final diagnoses are summarised in Table 1.

Discussion

Our proposed pathway presents an alternative to the 'one-stop' clinic. We demonstrate a reduction in clinic visits compared to our previous pathway, rapid diagnosis and a low proportion of unnecessary scans.

Ninety-two clinic appointments were saved across our cohort of 99 patients when compared with our previous pathway. This is based on 92 patients having a diagnosis at the first clinic appointment, compared to our previous model which required patients to have two clinic appointments. It is difficult to compare directly the efficiency of our proposed model with the one-stop pathway given the differences in clinic waiting times, clinic appointment duration and thus the number of patients seen per clinic. Additionally, there are a scarcity of data, with only a handful of heterogeneous studies for comparison. Our diagnostic rate at the first appointment is comparable to a recent study that evaluated a one-stop clinic in New Zealand, which found an 88 per cent diagnosis at the first specialist appointment.[8]

Ninety-four per cent of our patients were seen within the two-week referral target time, which is above the 93 per cent required standard set by the Department of Health.[9] Whilst this rate was lower than the audited 97 per cent achieved under our previous model, four of the five breaches occurred within the first two months of pilot implementation, and

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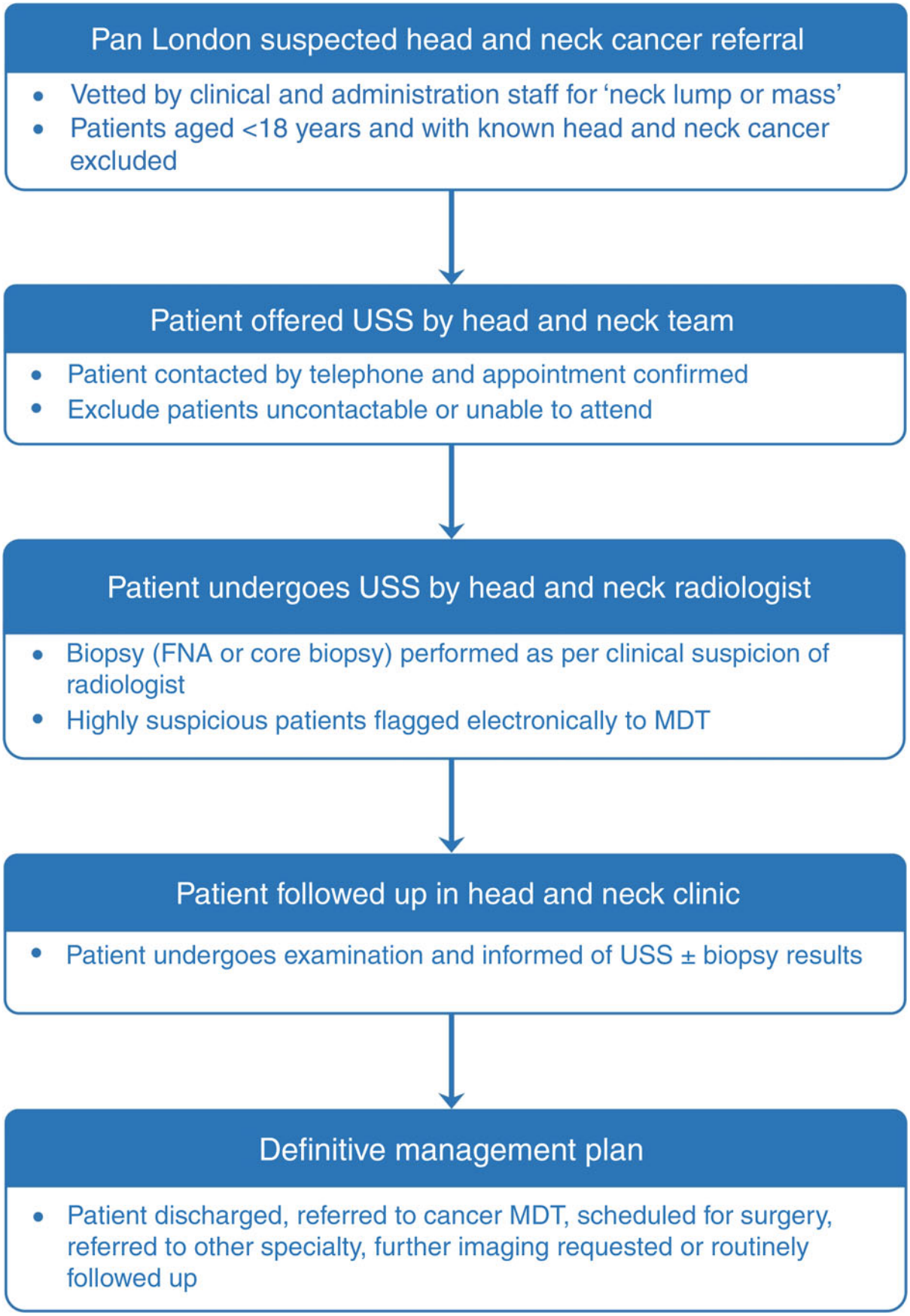

Fig. 2. Proposed pre-clinic ultrasound pathway. USS = ultrasound scan; FNA = fine needle aspiration; MDT = multidisciplinary team

were due to logistical or administrative reasons. Excluding these first two months, 98 per cent of patients met the two-week referral rule.

Over 90 per cent of patients were given a diagnosis at most 26 days and on average 14 days after referral. Patients with suspected malignancy on ultrasound were flagged up within our

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Table 1. Final diagnoses from two-week-wait neck lump referrals

Final diagnosis	Patients (*n*)
Primary head & neck malignancy	2
Thyroid cancer	5
Lymphoma	4
Secondary metastasis	1
No abnormality	14
Reactive lymph nodes	25
Benign thyroid disease	9
Anatomical variation	5
Lipoma	8
Pleomorphic adenoma	5
Other salivary gland disease	9
Sebaceous cyst	2
Dental abscess	2
Tuberculosis	3
Other	5

electronic patient record system and had their subsequent management fast-tracked, leading to an even quicker average time from referral to diagnosis of 9.7 days. Of the 12 patients diagnosed with a malignancy, 5 underwent further imaging via our 'triple imaging' model, as previously described,[7] and discussion at a cancer multidisciplinary team (MDT) meeting prior to their follow-up appointment in clinic. These findings are comparable or better than reported outcomes for one-stop neck lump clinics, where waiting times alone are typically two to three weeks.[4,6]

As with all pilot studies, we encountered a number of logistical and pathway hurdles to overcome throughout. As such, seven patients did not benefit from the new pathway. Of these, two patients, both with radiologically benign disease, were seen in clinic prior to their biopsy results being available and thus required a further appointment. Both patients had benign disease, one had autoimmune thyroiditis and the other had a tuberculous node. These patients were reviewed in clinic and reassured of the benign appearance of their neck lumps when referred onwards; however, they were brought back as a safety net to be informed of the final biopsy diagnosis.

Four other patients were not felt to warrant ultrasound assessment. All had a sensation of a lump in the throat rather than a neck lump; however, this was not clearly indicated on the referral letter. Separately, one patient was inadvertently sent for a repeat ultrasound scan having already had one. Our institution has since implemented an electronic patient system and has introduced tighter vetting processes to reduce the number of unnecessary scans. We acknowledge, however, that there will always remain a small proportion of patients who undergo scanning when not definitely indicated. We feel this is an acceptable compromise considering that ultrasonography is a low-cost, fast investigation, with no known adverse effects.

Our pathway has a cancer detection rate of 12.1 per cent, which is comparable to results from one-stop neck lump clinics. Fourteen per cent and 25 per cent of patients were found to have 'no abnormality' and 'reactive lymphadenopathy' respectively, again in keeping with other studies.[10]

We feel that our pathway confers a number of advantages over the one-stop clinic. Waiting times for patients to be seen in one-stop clinics are typically between two and three weeks, with appointments normally taking an hour.[3] These clinics are also associated with high set-up and running costs. More importantly, clinics place a strain on already stretched resources and personnel who are taken away from routine activities whilst the clinic is running. In particular, both the Royal College of Radiologists and the Royal College of Pathologists have recently warned of a shortage of the respective staff to meet diagnostic demands for cancer care.[11,12] Whilst we have not made any formal cost calculations, the integration of our proposed pathway into existing clinics avoids the need for additional dedicated staff or equipment, and maximises the use of resources, which we believe will have associated cost-saving implications.

We are able to achieve a diagnosis from the point of referral quickly, if not quicker than one-stop neck lump clinics. Whilst our pathway necessitates an additional hospital visit, 30 per cent of patients in one-stop clinics require re-attendance for various investigations.[5] Additionally, there is an increasing need to identify human papillomavirus and Epstein–Barr virus status in cases of oropharyngeal cancer and in the phenotyping of tumours, which a one-stop clinic does not allow sufficient processing time for. We are unaware of any studies involving one-stop clinics that address this issue; however, it is our experience that patients are often required to return for a further core biopsy or to return at a later date for the phenotyping of tumours. It is therefore routine practice at our institution to perform ultrasound-guided core biopsies for lymph nodes (and/or the primary tumour) if imaging appearances are highly suspicious of malignancy.

The coronavirus disease 2019 pandemic has altered the approach to head and neck cancer management for the foreseeable future
The current 'one-stop' neck lump approach has a number of limitations, with limited evidence of effectiveness
New pathways are needed that are compatible with previous, current and any future repeat pandemic restrictions, whilst delivering faster cancer diagnoses
Pre-clinic ultrasound scanning in expert hands is a safe and effective approach in patients presenting with suspicious neck lumps

The current outbreak of the novel Covid-19 has highlighted the further advantages of decreased patient hospital visits and face-to-face contact. Our pathway is especially effective in avoiding unnecessary flexible nasoendoscopy – an AGP and requirement of the original one-stop clinic, performed prior to imaging and biopsy. One-stop clinics typically require patients to rotate between seeing a surgeon or radiologist, and waiting for results with or without other members of the MDT. With current social distancing measures, and the shortage of personal protective equipment (PPE), we do not feel that such a model is viable. We have continued with our pathway during the Covid-19 pandemic, but have adapted it to include telephone follow-up calls in appropriate cases. From this cohort of 99 patients, we identified 29 patients who we felt could have been safely discharged directly following ultrasound scanning. However, we felt it important that patients receive a surgical clinical review as a necessary safety net, to allow time for explanation of the ultrasound findings and because the current set-up does not allow for safe direct discharge following ultrasound scanning. During the

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Covid-19 pandemic, we opted to follow these patients up remotely, further reducing face-to-face interactions.

Interestingly, the Covid-19 pandemic required many other institutions to adapt the cancer pathway in order to minimise face-to-face contact and AGPs. This included the use of risk-stratification tools, early radiological or cytological diagnostics,[13,14] telephone consultations,[15] and allied healthcare professionals.[16] Although early ultrasound and diagnostics were used, to our knowledge no formalised pathway has been proposed to allow efficient delivery of such a service.

Whilst there was a significant decrease in the number of referrals during the pandemic, evidence suggests that this number has now surpassed pre-pandemic levels, with delays in referral, diagnosis and treatment initiation for new cancers.[17] We therefore see that there is a greater need, now more than ever, to streamline the current pathway and utilise the successful techniques employed during the pandemic, including our proposed ultrasound pathway, to improve the delivery of timely cancer treatment. Additionally, even after this pandemic is long behind us, the proposed advantages from this pathway are transferrable to other communicable diseases, and any future outbreaks or resurgences.

Conclusion

Head and neck cancer care has changed dramatically over the past decade, and rates of disease are continuing to increase. There is a constant push to provide ever faster diagnoses for patients within a system that is under increasing financial, resource and workforce constraints. We have shown that pre-clinic ultrasound scanning is a viable alternative to the current 'one-stop' neck lump pathway. Our results demonstrate quicker diagnosis in cancer patients, with fewer clinic visits than our previous pathway and a low proportion of unnecessary scans. In the new post-Covid-19 norm, our pathway minimises face-to-face interaction and avoids the need for unnecessary potential AGPs, with a resultant saving on PPE. Services can be adapted to our proposed pathway with minimal re-structuring, allowing the efficient use of existing resources with a cost-saving potential.

As with all pilot studies, further refinement is needed to streamline and make the process more robust. In addition, a larger study is required, with direct comparison to the one-stop clinic, to further assess strengths and limitations.

Data availability statement. The data that support the findings of this study are available on request from the corresponding author with the permission of University College London Hospitals NHS Trust.

Competing interests. None declared

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