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**The Role of Podiatrists in Cancer Care**

**Part 1. Early identification & Diagnosis.**

**Afni Shah-Hamilton**

This new series focuses on the opportunity for the podiatrist to develop a role in the cancer pathway - from detection through to treating patients during their anticancer therapies, rehabilitation post treatment or surgery and helping cancer survivors. Practical guidance is offered as part of Afni’s reflection from her both her experience and research. She rightly believes that podiatric oncology is another area where podiatrists can excel. The first article focuses on detection of benign and malignant tumours that can affect the foot.

Because this topic may appear taboo for some, and doubtless will be read by podiatrists interested in different disciplines, **two themes** must be appreciated. (1) Initially identification and early referral is the baseline objective for all podiatrists. (2) However, in some cases podiatrists will have different skills and competencies to refine their initial diagnosis by screening, using imaging to biopsy. It should be appreciated that podiatry as a discipline is changing constantly and that medicine has to adapt with how health care professionals can support optimal patient management in an ever changing health economy with new priorities. (Editor)

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ancer treatment remains a niche area within podiatry practice, with relatively few podiatrists specialising in this field. With a growing need for the profession to take a more active role in the cancer care pathway, half of the population will likely to have suffered from some form of cancer by 2030. In developing our expertise new opportunities for podiatrists in this area of treatment could open up.

**Epidemiology**

Whilst tumours in the foot and ankle are less commonly found than other forms of cancer, 2% of sarcomas[[1]](#endnote-1) arise in the foot and Toepfer et el [[2]](#endnote-2) documented in their study of looking at MSK tumours in the body; 5.52% of tumours were in the foot and of those 64% involved bone. With more than 360,000 new cancer patients diagnosed in the UK in 2016[[3]](#endnote-3) this could translate to almost 20,000 new cases a year.

It is also well documented,[[4]](#endnote-4)[[5]](#endnote-5)[[6]](#endnote-6)[[7]](#endnote-7) that early diagnosis and proper management are ‘*key factors in increasing life expectancy and functional outcomes of these patients*’[[8]](#endnote-8). It is therefore important for podiatrists to be alert to unusual or suspicious lesions. As a profession, we are likely to see a patient for multiple appointments and through this continuity of care we are uniquely placed to identify subtle changes in an unusual lesion or one where delayed healing is apparent. Early detection with an ideal rapid referral of a suspicious tumour can increase the chances of recovery for some patients. Often specialist centres are distributed widely in the [UK](https://www.cancerresearchuk.org/funding-for-researchers/our-research-infrastructure/our-centres).

**Who is at risk?**

Benign and malignant tumours may present to us in all podiatry clinics settings so we should all be alert, whatever our particular specialism. Whilst many tumours are more prevalent in middle and older aged patients 10% in the paediatric population[[9]](#endnote-9) can also be affected. Skin cancer does not only affect Caucasians or especially fair skinned or redheads, melanomas occur in all races and affect all skin types and colours. In terms of identifying higher risk groups, they are mainly diagnosed in 40 to 70 year olds.

***Case study***

A misdiagnosis of foot pain was made when this was actually related to the patient having lung cancer. The patient was seen by two physicians and an orthopaedic surgeon who had missed the diagnosis when providing treatment and by the time the cancer was detected, it was too late.[[10]](#endnote-10)

# How should we approach potential tumorous growths?

A systematic approach to the examination of the foot and ankle should include a methodical investigation of the site. Differentiation between possible malignant and benign tumours can be challenging.

**C**olour (not skin coloured)  
**U**ncertain diagnosis  
**B**leeding lesion on the foot or under the nail,   
 including chronic granulation tissue  
**E**nlargement or deterioration of the lesion or ulcer despite treatment   
**D**elay in healing (>2 months)

**CUBED acronym for investigating suspicious lesions on the foot**

The CUBED acronym[[11]](#endnote-11) helps identify changes in the case of any suspicion of malignancy.

Reflecting on experience the following practical approach has been valuable (see box below).

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| Assess the deformity itself.  Consider the duration and history of the appearance.  Check if the area has become painful.  Investigate and evaluate any tenderness on movement of the involved joints.  Investigate sensory and motor neurological status and any deficits detected.  Investigate the depth of the growth and consistency of the surrounding bone and soft tissue.  Review the area if possible with transillumination or a dermatoscope.  Note deeper tissue adhesions and involvement.  Document any clinical characteristics.  Use minimal statements where no lesions were present. |

**Tips for assessing lesions**

If any of the following features are present in a suspicious growth[[12]](#endnote-12)

a) lump size is more than 5cm,

b) sudden increase in size,

c) a source of continual or deep seated pain,

d) recurrent,

Precautionary referrals are likely initially but the adage, *‘better safe than sorry’* is pertinent. With experience lesions such as fibromas and innocent skin changes can be excluded. Unfortunately, with cancers there is no absolute assurances until biopsies can be undertaken.

When highlighting any concern, when referring to a centre, provide as much relevant background as possible. This would include any changes you have noted over time and any family history of cancer that you are aware of. This will help the cancer unit to understand the rationale for the referral and prioritise where appropriate.

# What are the key types of tumour for podiatrists to look for?

Carcinomas and sarcomas are differentiated by their tissue. The former is more common and relates to skin and lining tissue of organs. Sarcomas are associated with connective tissue and tend to be less common.

Some tumours have a greater predilection for younger patients e.g synovial sarcoma. These can affect middle aged adults and typically present as a firm fixed mass, which has been latent for a long time and then expands. Its presentation varies and the patient might simply report pain instead of swelling alone. Testing for associated pain in the local lymph glands is an important diagnostic test as regional lymph nodes can be affected. Carcinomas affect older people as a generalisation.

Malignant bone tumours include Ewing’s sarcoma, osteo- and chondro-sarcomas. Ewing’s sarcoma presents as a lytic expansible mass in the metatarsals with an onion peel appearance, and affects teenagers. Meanwhile chondrosarcomas are slow growing tumours that typically present in middle aged and older patients. Sub-ungual osteochondromata affect younger patients and distort toe nails and should be differentiated. The nail is grossly distorted with a discoloured expansile nail bed. It is not unusual for histologists to use a cancer centre for secondary opinions as in rare cases sub-ungual chondromata can develop malignancy.

The hand is the site of a great variety of benign lesions and, rarely, of malignant lesions. Frequently, these lesions present in a similar way to benign conditions leading to erroneous diagnosis and inappropriate treatment. Awareness of the possibility of metastatic disease during orthopaedic assessment is essential to decrease patient morbidity.

**Case study**

A case that was referred to our institution with a single metastasis in a digit from occult gastric adenocarcinoma is used to illustrate the way these lesions are managed. The diagnostic difficulties are summarised and an overview of literature was performed to determine management pathways to aid others in the treatment of these case

***Acrometastasis***

Benign growths in the feet include ganglions and plantar fibromatosis which may share presentational aspects with a malignancy. See the [Appendix](http://consultingfootpain.co.uk/wp-content/uploads/2020/02/Appendix-Cancer-Care-and-tumour-affecting-the-feet.docx) for further details on different benign and malignant growths. [Acrometastasis](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2728313/) can be the first manifestation of occult malignancy. Patients may have unresolved musculoskeletal problems. This can be a sign of an undiagnosed type of (occult) cancer of unknown primary site that is already metastatic. Other malignant secondary lesions of the bones located in the hand or feet can affect every age group but are predominantly found in males, perhaps due to links with prostate cancer. Acromatastases are not uncommon and can be found in patients with primary tumours in lungs, colon and genitourinary regions[[13]](#endnote-13) [[14]](#endnote-14) [[15]](#endnote-15) [[16]](#endnote-16). Due to the fact the cancer is already spreading prior to diagnosis, the patient’s prognosis is normally poor and immediate action is essential. It is therefore important to be vigilant for any such cases.

**A**symmetry **B**orders **C**olour (varied) **D**iameter (> 5mm) **E**volving (shape, size)

**ABCDE classification**

# What about skin cancer?

In addition to growths, there is now greater awareness amongst podiatrists of melanomas. They are not uncommon in the foot and ankle [[17]](#endnote-17),[[18]](#endnote-18) and must be thoroughly investigated. In addition to the CUBED acronym highlighted earlier, the ABCDE detection classification [[19]](#endnote-19) (see right) is a good guide for monitoring these and how they develop.

At first appearance, it can sometimes be hard to differentiate between more common issues (including nail trauma) and a malignant melanoma or non-melanoma squamous cell carcinoma. Some of these are set out below and further investigation of the nail plate and bed should help in differentiating these conditions. It is nevertheless worth bearing a melanoma in mind and making appropriate notes for future reference, particularly if the patient is unresponsive to initial treatment or has a clinical history that might suggest a higher risk of cancer.

Some of the key issues that may present similarly to a melanoma include: nutritional deficiencies – these can cause several changes to the shape and surface of the nail bed

* subungual haematomas – a collection of blood under nail, this can be very painful and can cause the nail to look slightly deformed.
* paronychia - infections that affect the cuticle and sides of the nail. It can cause nails distortion, inflammation and exudate but should respond to appropriate treatment within a few weeks.
* pseudomonas infections - give a dark blueish green discolouration under the nail. Can sometimes look mottled.
* fungal moulds infections (such as Scytalidium, Scopulariopsis and fusarium) – can produce a melanin-related pigment in the nail.
* pyrogenic granuloma - a benign vascular lesion that appears as an overgrowth tissue due to trauma, irritation or hormonal factors. They can look like a spot of cherry jam and are common in young patients and pregnant women.

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| **Subungual melanoma** | A subungual melanoma originates from the nail matrix and develops over weeks or months. In its most common form, it starts as a pigmented band visible the length of the nail plate (melanonychia). The pigment band becomes wider, especially at its proximal end and becomes more irregular in pigmentation. It can extend to involve the skin of the adjacent proximal or lateral sulci - this is known as Hutchinson sign. The nail may develop a nodule, ulcerate or bleed and the nail plate may become thin, cracked or distorted. |
| **Ungual melanoma** | An ungual melanoma originates from under the nail plate and can form a non-pigmented nodule under the nail plate. This can sometimes cause onycholysis and look verrucoid. They are normally painless but an advanced tumour infiltrating into underlying bone may cause severe pain. |
| **Periungual Melanoma** | A periungual melanoma originates from skin beside the nail plate and presents as a melanocytic naevus of the nail matrix. The pigmented band tends to be narrower than 3mm and has a uniform brown or dark brown colour. Benign pigmentations can be observed in the cuticle or sulci and these are referred to as pseudo-Hutchinson sign. |

**Melanomas**

Finally, there are three types of melanomas that can affect the nail apparatus each with different characteristics. An urgent referral stating your findings in the report.

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| **Deficiency** | **Features** |
| Vitamin B | appear like beads of wax dripping down the nail. |
| Vitamin B12 | can give nails a brown- grey discoloration. |
| Folic acid or protein | can cause nail plate ridges and cause Koilonychia |
| Iron | as well as nail plate ridges, can also cause the nails to be brittle and a deep central groove. They can look pink or red. |
| Biotin | can cause discolouration and increase risk of fungal infections. |
| Zinc | can cause discoloration and in severe cases cause beau’s lines. |

[[20]](#endnote-20)

# Summary

With cancer impacting, either directly or indirectly on the population, podiatrists can contribute significantly as primary screeners or active participants working with oncology units. play in this area of care. By assisting those actively undergoing anticancer treatment, even though some cases are not curable, patients surviving cancer still require assistance in managing some of the side effects as part of their recovery. The next two articles in this series will focus on **podiatric adverse events** (PAEs).

It could be argued that the chance of survival and quality of life during and after treatment comes down to timely detection. This can be greatly enhanced where the same practitioner is already seeing an at risk patient on a regular basis. Even in a busy multi-chair practice or the NHS, where patients may not see the same podiatrist on each visit, detailed notes from the clinician recording key features (e.g. using the CUBED acronym) can provide a continuity of care that

facilitates swift intervention and potentially saves lives.

Greater awareness of issues such as secondary acromatastases as well as the warning signs of other malignancies will help reduce the incidence of such case studies. Aligned to this, an improved understanding of the links between cancer and podiatric issues helps to avoid misdiagnosis or suboptimal treatment and ultimately could save lives.

Afni Shah-Hamilton runs ***Tiptoe Foot Care***, a private podiatry practice in Barnet, London as well as sitting on the Macmillan AHP advisory board. She has previously worked in the NHS and has significant experience of dealing with high risk patients through her close relationships with oncologists and a local cancer charity. She is passionate about the role that podiatrists can play in improving the quality of life for both cancer sufferers and cancer survivors.

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