
DIAGNOSTIC SERVICE

The unit primarily sees patients from within St John's but also runs one of the largest direct access postal diagnostic services for superficial mycoses in the country dealing with about 11,000 specimens per year. The highly experienced staff sample approximately 400 patients, in person, per year. Postal specimens are accepted from healthcare professionals referring private or NHS work. We will process up to 3 specimens per patient for one charge, thus allowing several sites to be sampled, or several sampling techniques to be used, without incurring extra expense. This facilitates more accurate diagnosis as different sites, such as toe webs and toe nails, might have different conditions affecting them and these may require different treatment or duration of treatment. Direct microscopy is performed using both Calcofluor white fluorescence and bright-field microscopy and results are usually issued within two working days of receipt of the specimen. Culture for dermatophytes has a three to four week turnover from date of receipt.

SPECIALIST INTERESTS

The unit aims to promote accurate diagnosis of fungal infections and to actively participate in the education of healthcare professionals in mycotic diseases. The unit teaches and trains students and healthcare professionals within St John's and the Trust, and participates in and organises national courses on medical mycology.

INFORMATION REQUIRED

The results from the laboratory will directly reflect how much of the necessary patient information is provided and the quality and quantity of the material submitted. The specimen packet and request forms should have the 1st and 2nd name, and date of birth as standard requirements.

The request form should also include the NHS number, gender, ethnic origin and sample site. Please indicate exact sample site for skin (eg, hand, leg) and whether it is a toe or finger nail. If the patient has resided overseas or has a recent travel history, contact with animals etc., this may also be relevant. If you suspect a specific mycoses please say so e.g. ?pityriasis versicolor or ?candidosis.

Any samples that are not labelled with patient identifiers, or accompanied by a completed request form may not be processed. If the laboratory cannot match the sample to a request form and sender, the sample will be rejected and not processed.

TRANSPORTATION OF SAMPLES

All samples of skin, hair and nail should be contained in a folded paper packet, secured with a paper clip. This keeps the specimen dry and free from contamination. If the paper is coloured skin and hair contrasts well against it making it easier to see. Do NOT send specimens in glass as this can break and be a hazard to laboratory staff, unless using a specialised slide holder. Do not send specimens in plastic containers as the electrostatic forces make it very difficult to remove skin scales, and the specimen is more likely to become moist which encourages bacterial contamination.

Samples in the paper packet should be placed inside a sealable plastic bag, and this should be placed inside a secure envelope which also contains the request form. This three layered

system is designed to prevent spillage if the package is damaged during transport. Further information can be obtained by calling the laboratory or from the Synnovis website <http://www.synnovis.co.uk/test-information>. If sending a liquid sample or a biopsy please contact the laboratory first as delays in delivery to the laboratory can compromise test results. These samples should be received ideally the same day or within 48 hours.

All samples should be sent to the laboratory on the day they are taken. If there are significant delays in receipt the laboratory will note the delay on the test report and for biopsies may contact the doctor to discuss the reliability of the test, and whether it should proceed.

COLLECTING SAMPLES

Sample size: enough sample to cover a 5 pence coin would be more than adequate for all tests. Collect only affected looking tissue.

Skin: Skin scrapings will give the best results and allow reliable direct examination. If the lesion has an active edge this is the best site for scraping, otherwise a general scrape of the scaly area is suitable. (Use a blunt scalpel, the blunt edge of a scalpel blade, or a glass slide, to scrape the lesion, but do not send the blade or slide to the laboratory as they pose a hazard).

If it is difficult to obtain adequate scrapings from a site, or if the site is a mucous membrane, transport swabs are good for culture of *Candida* spp. and dermatophytes. For the diagnosis of pityriasis versicolor a sellotape strip may be taken and placed face down on a glass slide which must be sent in a proper slide holder to the laboratory. For blistering lesions the roof of the blister is the best material for direct examination and culture.

Nails: Using nail clippers, samples should be taken comprising the whole thickness of the nail, as near as possible to the proximal edge of the lesion. The majority of infections start under the nail, so the subungual debris is particularly valuable. This can be removed with a scalpel or dental probe. Superficial scrapings of the nail plate are only useful in cases of superficial onychomycosis, where white crumbly patches are seen on the dorsal surface of the nail, or in proximal subungual onychomycosis.

Up to 50% of nails in which fungus has been seen on direct microscopy fail to grow a pathogen. Therefore if skin lesions are also present in soles, toe webs or on palms please send samples from these as well, as they are probably caused by the same pathogen and are more likely to give a positive culture. If paronychia is present moisten the nail fold with sterile saline and gently insert a dental probe to remove a sample for direct microscopy. A transport swab should also be used for culture.

Scalp: Not only scalp, but vellus hairs may be infected by fungi. The root end of the infected hair is the best material for direct examination; cut hairs are of no value. A scrape of the lesion may produce scales with infected hairs embedded in them as tiny dark stumps, showing up as black dots. Generally we would recommend scraping rather than plucking. For culture, disposable unpasted toothbrushes (available commercially) brushed at least ten times through the hair are a very sensitive method of sampling the scalp and may also be used in epidemiological studies and for sampling pets.

A scrape plus brush is recommended as the microscopy result will be available 3 weeks before the culture result. In cases of scalp kerion, which may be very inflamed and painful, a transport swab may again give a positive culture. If a child has scalp ringworm it is recommended that all the other children in the family should be screened with a brush sample, regardless of whether they show obvious clinical signs; subclinical infections are common with some dermatophyte species.

This information is also on our website with the Mycology Request form.

<http://www.synnovis.co.uk/our-tests/mycology>

Disposal of sampling equipment

Dispose of all sharps according to local policies, usually in a sharps bin such as the type used for needles. Any materials / containers contaminated with patient tissue should be disposed of in a clinical waste container.

Advice

We are happy to answer queries concerning sampling, results, or treatment, and to provide information and advice to clinical colleagues. However, where the patient concerned has a complicated medical history the enquiry will be forwarded to a dermatologist for specialist advice on treatment.

SOURCES OF SAMPLING EQUIPMENT

Single use blunt scalpels are available from Blink Medical Ltd., Unit J15, Hastingwood Industrial Park, Wood Lane, Erdington, Birmingham, B24 9QR. Tel: 0121 386 8433

The specimen transportation packs that we use are called Mycotrans and they have a blue coloured insert and are obtained from Mycotrans, P O Box 11723, Biggar, Scotland, ML12 6NN. Tel/fax: 01899 830555.

The brushes we use are obtained from Brushaway Products, Croft House, Croft Road, Bromley, Kent, BR1 4DR, tel: 020 8313 3344 and are disposable toothbrushes, unpasted.