QML Newsletter.
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Laboratory Investigation of Coeliac Disease

Dr David Heyworth-Smith

Coeliac disease is a chronic inflammatory enteropathy triggered by exposure to the gluten (storage protein) fraction of wheat, or similar proteins in rye and barley cereals. There is a strong genetic component, with association with the HLA molecules HLA-DQ2 and HLA-DQ8. The spectrum of coeliac disease includes "silent coeliac disease" with no intestinal symptoms. Most afflicted patients however will complain of some combination of symptoms of abdominal bloating, flatulence, abdominal cramps or discomfort, and altered bowel habit. Latent coeliac disease refers to patients who may develop coeliac disease in the future, or have had coeliac disease in the past, but have a normal small bowel biopsy on a gluten inclusive diet at the time of investigation. The symptoms and bowel inflammation of coeliac disease may be entirely ameliorated by adopting a gluten free diet.

The diagnostic approach to coeliac disease:

The diagnosis of suspected coeliac disease relies upon both serological testing, and upper intestinal endoscopy with histological examination of small bowel biopsy. The characteristic histology is villous atrophy and inflammation in the lamina propria. In general, histological examination is regarded as the gold standard, however there is some evidence that false negative biopsies may occur in some patients with minimal disease or with patchy intestinal changes. Nonetheless, small bowel biopsy should be performed to confirm serological results, and to exclude other causes of gastrointestinal pathology, when indicated.

Serological investigations:

Serological investigation of coeliac disease involves the detection of a number of different antibodies. These are antibodies to gliadin and autoantibodies to the self-antigen tissue transglutaminase. In contrast to many other immune disorders where the antibodies tested for are predominantly of IgM or IgG isotype, in coeliac disease measurement of antibodies of IgA isotype provides better sensitivity and specificity. These antibodies are measured both to help establish the diagnosis, and also to monitor compliance with a gluten free diet. Based on screening studies, the prevalence of positive coeliac serology in most Caucasian communities is between 1 in 250 and 1 in 300 individuals, although the incidence of coeliac disease may be less frequent than this.

Gliadin is the ethanol soluble fraction of gluten. Detection of anti-gliadin antibodies has lower sensitivity and specificity for coeliac disease compared to the detection of the auto-antibodies: anti-endomysial antibodies, and anti-tissue transglutaminase antibodies. Anti-endomysial antibodies are measured in serum by immunofluorescent microscopy, most commonly using sections of monkey oesophagus as the tissue substrate. The endomysium is a connective tissue element surrounding muscular bundles. The antigen of the endomysium to which antibodies are directed in coeliac disease is thought to be tissue transglutaminase. Tissue transglutaminase is an enzyme which deamidates the gliadin protein. Antibodies to tissue transglutaminase are measurable directly by an ELISA (enzyme-linked immunosorbent assay) methodology. The source of the tissue transglutaminase used in the ELISA has significant impact, with recombinant antigen performing significantly better than that derived from human guinea pig kidney. QML Pathology uses

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QML Pathology
BREAKING NEW GROUND

23 822 sq metres may seem like an excessively large piece of land on which to build a new home, however when your focus is set firmly on delivering superior service it is essential to provide a facility capable of supporting these ideals. With the recent announcement that QML Pathology will be developing a new state of the art central laboratory at Metroplex on Gateway, Murarrie, this is certainly an ideal the organisation intends on fulfilling.

With the development application approved and property agreement signed, spade has been ceremoniously put to earth and building works will now commence. Paul Csoban, General Manager Pathology commented, "Our decision to relocate to Queensport Quays Business Park from our outgrown West End operation allows us to deliver a new, purpose built central facility with minimum disruption to our business. The location is within an award winning estate with quality infrastructure. It meets all of our business requirements and provides a facility which will help us to continue delivering superior customer service to the Queensland medical community for many years to come."

Above: *Paul Csoban (General Manager - Pathology) & Neil Rodaway (Group General Manager - Diagnostic)*

Below: *The team does the offical ground breaking.*

from front page...

a methodology incorporating recombinant tissue transglutaminase.

IgA deficiency and coeliac disease:
Patients with total IgA deficiency are at an increased risk of coeliac disease, but may have negative tests for IgA anti-gliadin, IgA anti-endomysial, and IgA-tissue transglutaminase antibodies. In this population, measurement of the IgG gliadin antibody is necessary. At present, the role of IgG endomysial antibody testing and IgG tissue transglutaminase testing remains uncertain, and these tests are not offered by QML Pathology.

Coeliac disease in childhood:
Children, particularly in the age group of less than two years, may have normal total IgA levels, but nonetheless the maturing immune system may not mount a brisk IgA specific response. Therefore, in younger children an IgG gliadin antibody should be measured in addition to testing for IgA endomysial or IgA tissue transglutaminase antibodies.

Consequences of a gluten free diet on investigations:
Diet may have an impact on testing for coeliac disease. On a gluten free diet, coeliac disease will remit, and there may be a concurrent reduction in all types of coeliac antibodies, possibly leading to falsely negative test results. Therefore, in patients with suspected coeliac disease it is desirable to perform

This development will be an exciting venture for QML Pathology and another milestone in its 80 year history. Taking a position in Murarrie on the Gateway is going to provide a central feed to both the northern and southern suburbs, supported as always by the localised Stat Labs across Brisbane. Despite the move, the company will retain a major presence in the inner city in order to provide service to this key area. All aspects of planning have been carefully thought out to ensure the move causes minimal disruption while providing a new facility which will set the standard for quality pathology services and turn around times.

A 9,191m^2 development incorporating offices, laboratory and warehousing, the facility is set for completion in early 2006. With this expansion QML Pathology hopes to consolidate its position as a leader in the field of Pathology, delivering doctors across Queensland and Northern New South Wales with a product second to none.

Over the coming months, further details regarding the new laboratory will be outlined in the newsletter. For any queries please direct these to John McKecknie on (07) 3840 4444.

antibody testing after the patient has been on a diet inclusive of gluten for at least six weeks. Alternatively, if the patient has negative tests whilst on a gluten free diet, it may be necessary to perform the tests subsequently after a gluten inclusive diet has been introduced. Similarly negative results may occur from small bowel biopsies in patients with coeliac disease on a gluten free diet of some duration.

The role of HLA typing:

Detection of HLA-DQ2 and HLA-DQ8 may enhance diagnostic certainty in special scenarios, but it is not generally required in the diagnostic algorithm for coeliac disease. Coeliac disease is associated with specific allelic designations of HLA-DQ2 and HLA-DQ8, and the predominate role of testing is the high negative predictive value for individuals who are negative for the specific disease associated HLA alleles. It is recommended that before proceeding with such testing, the patient's clinical presentation and results are discussed with the laboratory.

The role of coeliac serology in associated diseases:

Coeliac disease is associated with a number of autoimmune disorders including type 1 diabetes mellitus, autoimmune thyroid disease, primary biliary cirrhosis, and possibly autoimmune neurological disorders. In addition, coeliac disease is associated with osteoporosis, and male and female infertility. The role of screening coeliac serology in these disorders is uncertain. In contrast, dermatitis herpetiformis is strongly associated with coeliac disease and positive coeliac serology, and a gluten free diet is part of the management of this disorder.

Indications for coeliac antibody testing:

Common indications for ordering coeliac antibodies:

- Childhood failure to thrive
- Chronic abdominal pain, bloating, flatulence, diarrhoea
- Investigation of unexplained iron or folate deficiency
- Suspected dermatitis herpetiformis

Consider testing if present:

- Osteoporosis
- Type 1 diabetes mellitus
- Down's syndrome
- Other immunological associations and associated diseases:

Recommended serological tests:

Adults:

- IgA anti-tissue transglutaminase
- If negative and there is a high clinical suspicion of coeliac disease, consider measurement of total IgA level, and gliadin antibodies including IgG anti-gliadin antibody.

Children less than 5 years of age, concurrent measurement of:

- IgA anti-gliadin, IgG anti-gliadin, IgA anti-tissue transglutaminase antibodies.

Online Medical Information

With growing demands on the medical community for continual professional development, the need to be able to access current, relevant and reliable medical journals and information has also grown. In the age of electronic databases and search engines, much of this information is no longer found as printed material. To assist you with sourcing the desired information in a timely manner, QML Pathology Librarian Michelle Alcock has put together a brief outline of some of the methods she utilises regularly, to give those of you new to it a kick start into the world of sourcing electronic information.

Where do you start? Today's plethora of available medical information often makes it difficult to know where to get reliable and current information. Do you use a print or electronic source? If you use an electronic source how do you know that the source is to be trusted? Will you have to pay for access to the information?

The medical information available through the World Wide Web (WWW) is similar to the information available in print, however there is a lot more of it. In addition to books and journals the web contains information and vanity sites, message boards, databases of references and citations, full text databases and search engines. How do you find what you are looking for among all of these resources? Search engines search the visible web, but how do you go further to get what you need?

There are a few sites that are worth using regularly when searching the web for information. They are part of the deep or invisible web that is often not accessible through search engines. Where and how to search is dependant on the information you need. For example, useful sites to obtain a general overview of a medical condition are:

- Medline Plus (http://medlineplus.gov) a service of the United States National Library of Medicine. This lists over 650 medical diseases and conditions with detailed information for both patients and doctors.

- U.S. National Library of Medicine's free database Entrez PubMed (www.ncbi.nlm.nih.

PRIVATE AND CONFIDENTIAL RESULTS

QML Pathology has in place procedures in relation to preserving the confidentiality of patient results and controlling access to them. The laboratory has always provided an additional service to doctors who wish to view certain pathology reports in a private and confidential manner. These reports may be on the doctor, their family members, staff within the medical practice or tests of a sensitive nature that they may not wish others to see.

When requested that a report be issued in a "private and confidential" format the laboratory attempts to ensure that the reports are forwarded, as instructed, in a sealed envelope marked "private and confidential".

With the advent and accelerated uptake of electronic reporting mechanisms there is an increased risk of "private and confidential" reports being inadvertently transmitted to practice management software without the appropriate levels of security.

In order to eliminate this risk, from January 17th 2005, QML Pathology has barred electronic transmission of any report that is requested and flagged as "private and confidential". These reports are generated at dedicated printers throughout the network and will only be available in hard copy, delivered in a marked and sealed envelope. It is possible for practices to lift this bar and continue the transmission of results through the download system. However, it must be noted that if the bar is taken off **all results** will be available via download including those of a more personal nature. To organise this please discuss with your local Medical Liaison Officer.

With this system we hope to maintain integrity in delivering "private and confidential" results.

gov/entrez/query.fcgi). Entrez PubMed offers access to the citations and abstracts of over 4000 medical journals and many science and allied health journals.

If the publisher has allowed access to the full text articles, an icon next to the citation indicates that it is available. Entrez PubMed allows for a variety of different searching methods. The excellent tutorials available will help you get the most out of the database. When satisfied with the results you can email, print or save the articles chosen.

If the desired articles are not available freely in full text there are two options:

- Go to the publisher of the journal's site and pay via credit card for 24 hour access to the article *or*
- Look at the library websites of local Universities, checking if they allow public access to their library collection and have the full text article you want. Most Universities allow public access, so you can print off or save to a disc the full text articles you need.

As the first two sites mentioned are based in the United States, you can also look at what our state and federal governments have to offer on their websites. The Australian Government Health and Aging website (www.health.gov.au) has an A-Z list of publications. HealthInsite (www.healthinsite.gov.au) is an Australian government site devoted to health information. The Queensland Health website offers a range of services for health professionals as well as a variety of publications searchable by medical condition available in a printable format.

Bookmark the above sites in your web browser allowing you to return to them regularly without having to remember the address. By using the same trustworthy sites regularly you can become familiar with the types of information offered and the methods used to locate it.

Local Charities in need of Urgent Support

Following the recent Tsunami disaster the community has united to support causes the world over and show their true spirit of generosity. It is this spirit that is needed now to provide assistance to local charities, including Drug Arm. Recently Drug Arm was considering shutting down its health program for the homeless due to lack of funding. In light of this QML Pathology has nominated Drug Arm as the second beneficiary of their 2005 Charity Ball, with MontroseAccess the other recipient. However, your attendance and support of the Charity Ball is vital if we are to raise enough funds for these two genuinely worthwhile charities.

The QML Pathology Charity Ball is shaping up to be an exceptional evening with fine food, fine wine, excellent entertainment and above all a valuable cause. We would be honoured if you would join us.

Grand Ballroom Hilton Hotel

Elizabeth Street, Brisbane City

On Saturday 26th February 2005
7.00pm for 7.30pm

The cost is $120 per head
Ticket price includes a three-course meal, beer, wine and entertainment.

Attire is Black Tie / Evening Wear

Please advise of your intention to attend as soon as possible.

P: (07) 3840 4554

F: (07) 3840 4972

E: jenny.scott@qml.com.au

Doctors' Notice Board

Dr Allan Clarke would like to announce the opening of his full time Private Practice as of January 2005. He will be consulting and operating at the following private practice locations –

- The Sunshine Coast Private Hospital
- Caloundra Private Hospital
- Noosa Hospital
- Selangor Private Hospital
- Cooloola Specialist Centre (Gympie)

Dr Clarke has a special interest in minimally invasive hip arthroplasty, knee arthroplasty, and arthroscopic knee and shoulder surgery. For appointments and enquiries please contact him on –

Phone – 5445 5848
Fax – 5453 4344
Mobile – 0413 885 230
118 King Street, Buderim
PO Box 1299, Buddina Q 4575

Dr Terence Holt would like to announce that he is commencing general practice as of February at Terrace West Endoscopy Centre, 18 Limestone St, Ipswich Q 4305.

Ph: 3812 1426

Dr Jaeme Zwart, MBBS, FRACS (Plas) Plastic and Reconstructive surgeon would like to announce that he is going to commence practice in Cairns in June 2005. He will practice at the Cosmetic and Plastic Surgery Centre. Any referrals or enquiries are welcome.

Dr Stephen Withers (Consultant Clinical Geneticist) is pleased to advise that he has commenced private practice at Pacific Private Clinic, Suite 2, Level 5, 123 Nerang St, Southport. For appointments please phone (07) 5532 7655.

COLLECTION CENTRE NEWS

For the convenience of our doctors and patients, we have listed the latest additions and changes to QML Pathology's network of clinics:

CHANGES TO COLLECTION CENTRES

Broadbeach (07) 5531 6602

Shop 2, Main Place
34 Queensland Avenue

Mon – Fri	7.30am - 5.00pm
Sat	8.00am - 11.00am

Cairns Lab (07) 4051 8944

Cairns Day Surgery Building
Cnr Florence & Grafton Streets

Mon – Fri	6.30am - 8.00pm
Sat	7.00am - 2.00pm
Sun	7.00am - 12 noon
Public Holidays	7.00am - 12 noon

Mount Isa (07) 4743 4299

13 Isa Street

Mon – Fri	8.45am - 4.45pm
Sat	9.00am - 11.00am

Oxenford (07) 5573 7039

Oxenford Medical & Professional Ctr
5 Michigan Drive

Mon - Fri	8.00am - 4.30pm
Sat	8.00am - 11.00am

Palm Beach (07) 5534 4211

Suite 1, 28 Palm Beach Avenue

Mon – Fri	7.00am - 5.00pm
Sat	8.00am - 12 noon

Taringa (07) 3371 3266

15 Morrow Street

Mon – Fri	7.00am - 12 noon 12.30pm - 7.00pm
Sat	8.00am - 4.00pm
Sun	8.00am - 12 noon
Public Holidays	8.00am - 12 noon

Tweed Heads South (07) 5524 7170

Shop 16, Home Mart on Tweed
112-140 Minjungbal Drive

Mon – Fri	7.30am - 12.30pm 1.00pm - 4.00pm

NEW COLLECTION CENTRE

Maleny (07) 5494 2843

46 Maple Street

Mon – Fri	7.00am - 12 noon 1.00pm - 5.00pm

Please contact your local branch or Brisbane Liaison for further information on (07) 3840 4943.

PLEASE NOTE

From 1st January 2005, the Huhner's Test will not be available at QML Pathology. More effective protocols are presently available to investigate infertility. For any enquiries or clarification please contact Professor Stephen Withers on 0404 871 911.

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NATA RCPA

Mayne Health Pathology Pty Ltd ABN 84 007 190 043 t/a QML Pathology

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