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Pituitary tumours
Keyhole parathyroid surgery
Management of primary hypothyroidism

Also in this issue
Childhood asthma in primary care
New Memory Clinic launched
Have your say on the future of MEDIsence

To ensure that we provide the most useful news updates and consultant articles we want to hear your feedback on this magazine. Do you think we should:
- keep the printed copy of MEDIsence
- keep the content but convert it to a digital magazine (pdf)
- instead of a quarterly magazine, post regular articles on our website for you to read on the go.

Please go to bupacromwellhospital.com/go-survey to vote. All entries will go into a hat with a chance to win a £100 John Lewis voucher. Closing date 30 October 2015.

Thank you

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SYMPOSIUM SERIES 2015

Our 2015 lecture series continues at 30 Euston Square, the home of the Royal College of General Practitioners. The series is led by our renowned consultants, many of whom are from London’s top teaching hospitals, to bring you the latest updates and advances in healthcare. Topics have been tailored with primary care GPs in mind.

We hope to see you there.

Saturdays: 9.00am-2.00pm
30 Euston Square
London NW1 2FB

10 OCTOBER Common concepts in primary care
21 NOVEMBER Musculoskeletal

HOW TO REGISTER
- t: 020 7460 5973
- e: gpeducation@cromwellhospital.com
- w: register online at bupacromwellhospital.com/GPevents
- Scan QR code to go directly to our registration page

Front Cover: Female head and thyroid gland. Coloured computer-enhanced gamma scan (scintigram) of a healthy human thyroid gland. The thyroid gland is a main endocrine gland situated at the base of the neck, and is divided into two lobes (as seen). The radioactive tracer Technetium-99m used in this gamma scan shows areas of activity (yellow) within the gland. The thyroid produces and stores hormones which control the basal metabolic rate of the body, influence growth and maturation, and regulate blood calcium levels. Gamma scanning involves introducing a radioactive tracer into the body, which is taken up by certain organs and detected as gamma rays by a gamma camera.

Photo - © Science Photo Library

The opinions expressed in this magazine are the personal views of the authors and do not necessarily reflect those of Bupa Cromwell Hospital.

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Thank you
Welcome to MEDIscene

I’m delighted to welcome you to this special endocrine issue of MEDIscene, which features articles from three of our newest endocrinologists and ENT surgeons; Dr Mark Vanderpump, Mr Daes Kim and Dr Harvinder Chahal.

We have worked hard to bolster our endocrine offering over the last year or so at Bupa Cromwell Hospital, and offer an extremely strong group of consultants, many of whom have come to us from London’s top teaching hospitals. Their experience, innovative approach to treatment and dedication to a multi-disciplinary team approach is delivering excellent results for patients.

So our endocrine centre is going from strength to strength, but there are many other things to celebrate at the hospital as well. I’m very excited by the launch of our new Memory Clinic (see page 13) – a first in a London private hospital setting – which can offer early diagnosis of dementia, giving patients or relatives peace of mind or a range of care and treatment options if a memory condition is diagnosed.

Our Sleep Clinic is also proving a real success. Sleep disturbances affect us all from one time to another, but clinical sleep disorders can cause real misery, and our respiratory experts (including Simon Boote who is profiled on page 6) can diagnose disorders quickly and get patients back on track.

I’m always keen to hear your feedback on MEDIscene and our wider GP engagement, but would be particularly grateful if you could answer a brief questionnaire at bupacromwellhospital.com/gp-survey to help us decide how best to move forward with the magazine. There’s a £100 John Lewis voucher up for grabs, so please do tell us what you think!

With warm regards,

Philippa Fieldhouse
General Manager
Bupa Cromwell Hospital

THE GP LIAISON TEAM

The GP Liaison team provides a bespoke service for GPs. We can assist you with any enquiries you may have, and help facilitate patient referrals via Cromwell Direct – 0800 783 9229. This is a dedicated line for GPs wishing to refer patients (both children and adults) for appointments with consultants, diagnostic tests and admission to the hospital.

We understand that GPs want to keep up to date with new treatments, diagnostics and services, and work closely with our consultants to coordinate our educational programme. Please see the health professionals area of our website for more information.

Amisha Patel is our GP Liaison Co-ordinator and will be the first point of contact for educational events including our symposium series.

We would be happy to arrange a practice visit at a convenient time for you in order to:
- discuss the latest developments at the hospital
- explore how we can work together more effectively
- introduce new consultants

If you would like to discuss your educational needs and arrange a practice visit, or would like further information about Bupa Cromwell Hospital, please contact us:

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Redevelopment update

Our multi-million pound refurbishment project has reached the half-way stage, and patients are already benefiting from greatly enhanced new patient rooms and clinical facilities.

The Dialysis Unit has been revamped and boasts the very latest technology, which has greatly improved the patient experience, and the Chemotherapy Day Unit has also been upgraded to a very high standard. Half of all patient rooms have been refurbished (with the remainder to be finished next year), and the upgraded Royal and Presidential Suites will open this August, providing the most luxurious hospital accommodation in London.

Meticulous planning and soundproofing has ensured that patient care continues uninterrupted, and patient feedback on the revamped areas has been extremely positive.
Our Macmillan nurses and counsellor

Bupa Cromwell Hospital employs a number of nurses who are certified by Macmillan Cancer Support, ensuring the very best care for patients in our internationally renowned Cancer Centre.

Steffanie Espiritu is a Breast Care Nurse who offers support and advice to people dealing with any breast condition, particularly breast cancer. Patients may come to Steffanie with questions about breast screening or further diagnostic testing, or need support as they undergo surgery or treatment following diagnosis of a breast condition.

Moi Ting Ling is our Nurse Navigator who helps patients through every stage of their cancer journey. Ting helps patients and relatives with inpatients and outpatients, offers the chance to speak openly about the impact of the diagnosis and treatment in a caring, confidential environment. Her role provides an essential support mechanism that is a core component of Bupa Cromwell’s holistic approach to cancer care.

For more information please email info@cromwellhospital.com

NEW CONSULTANTS

Bupa Cromwell Hospital gives a warm welcome to the consultants below who were recently granted Practice Privileges. Our consultants are committed to an extremely high level of care and provide an excellent service to our patients. We are delighted to offer the innovation and expertise of the following new consultants at the hospital:

- **Dr Marco Scaramuzzi** Consultant Anaesthetist Adult Privileges
- **Dr Constantinos Papageorgiou** Consultant Anaesthetist Adult Privileges
- **Mr Hasan Ahmed** Consultant Orthopaedic Surgeon Adult Privileges
- **Dr Omar Ali** Consultant Cardiologist Adult Privileges
- **Dr Sundeep Kaul** Consultant in General and Respiratory Medicine Adult Privileges
- **Dr Elena Khamzina** General Practitioner Adult and Paediatric Privileges
- **Dr Simon Ball** Consultant Trauma and Orthopaedic Surgeon Adult Privileges
- **Mr Jonathan Bull** Consultant Neurosurgeon Adult Privileges
- **Mr Dae Kim** Consultant ENT Surgeon Adult Privileges

The following two consultants have had their Practice Privileges updated:

- **Mr Daniel Tweedie**, Consultant Paediatric ENT Surgeon - Privileges extended to include adult tonsillectomy
- **Mr Justin Sauer**, Consultant Psychiatrist - Privileges extended to include outpatient consultations for Memory Clinic

**Retirement**

Mr Hasan Ahmed

**NEW CONSULTANTS**

Mr Christopher Bishop, Consultant General Surgeon

Mr Helen Storey is our Oncology Counsellor. We know how devastating a cancer diagnosis can be, not only for the patient but also relatives, and Helen, who works with inpatients and outpatients, offers the chance to speak openly about the impact of the diagnosis and treatment in a caring, confidential environment. Her role provides an essential support mechanism that is a core component of Bupa Cromwell’s holistic approach to cancer care.

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**NEW CONSULTANTS**

**What made you want to become a Respiratory Physiologist?**

I’ve always had an interest in physiology, so when it came to choosing a degree sports science seemed like the natural route for me. After graduating I worked as a personal trainer before deciding to study clinical physiology, with a focus on the respiratory system. I took a trainee physiologist job in Liverpool, then moved to London in 2013 to work at the Royal Brompton Hospital before taking up my current role at Bupa Cromwell Hospital in June last year.

**What’s the best thing about your job?**

Working with patients is the main reason why I love what I do. I really enjoy being able to meet a variety of people on a daily basis and have a positive impact on their lives. Everyone has a different story to tell and it is incredibly rewarding to help diagnose a respiratory condition and help them get back on track.

**What’s the hardest thing about your job?**

Language or cultural barriers with international patients can be challenging, but Bupa Cromwell is well known internationally and all staff are very used to working with patients who may not speak English or have different cultural expectations. We have a team of in-house interpreters on hand whenever we need any assistance, as well as international patient coordinators who are a big help.

**How would a patient end up seeing a respiratory physiologist?**

Most of the time a patient will come to see me due to a sleep or lung condition, or a secondary condition that might have an impact on lung function, such as muscular dystrophy. The consultant would assess the patient and refer them to a respiratory physiologist for any necessary tests, such as spirometry, full lung function, exercise tests or sleep studies. We then compile a summary report to send back to the consultant.

**What is an average day like for you?**

I usually work 9am-5pm. The first thing I do when I get in is set up all the testing equipment in our two lung labs – which opened a couple of years ago and have been a huge success, in preparation for clinics that day. I then spend the majority of my day carrying out tests on patients and writing up reports to send back to the referring consultants. I see outpatients in the lung labs and also go to the wards to carry out tests on inpatients, such as CPAP (continuous positive airway pressure) treatment or sleep studies.

A big part of my role is managing the department, so when I’m not testing patients I sort out staff rotas, ensuring the team is happy, and managing general departmental admin.

**Is your role different in the NHS compared to the private sector?**

I don’t think my role varies much in the NHS, but one difference I have noticed is that I feel I have much more time to devote to patients at Bupa Cromwell Hospital. This is a huge benefit as I feel I can meet all patient needs fully, without having to rush, and provide the exceptional service that we strive for at Bupa Cromwell.

Having time to fully explain treatment helps the patient to become more comfortable with it and leads to better compliance. We had a patient recently who had been receiving CPAP at another facility with little success, and it was clear that he hadn’t been given any guidance about what to expect or what the treatment actually did. We put real emphasis on patient education, and after two days of reassembly and coaching, he became comfortable and started to experience the intended benefit.

**What advice would you give to someone hoping to follow in your footsteps?**

The best advice I can give is to get work experience. Approach a physiology department and ask to shadow someone for a few days. I think a lot of hospitals are very open to allowing students to undertake work experience, and this gave me the best experience I could have asked for before I started my degree.
The pituitary gland is a bean sized gland located within a bony cavity called the ‘sella turcica’ at the base of the brain (Fig. 1a). Above this is the optic chiasm, and lateral to the sella are the cavernous sinuses. The pituitary gland is one of the most important glands of the endocrine system; through the secretion of hormones it plays an essential role in homeostatic functions, including metabolism, growth and reproduction.

Pituitary adenomas are common intracranial neoplasms affecting up to 22% of the population, and a small proportion of these will manifest with clinical and biochemical symptoms. They are typically benign, well differentiated and non-metastasising, and can arise from any of the secretory cells.

The vast majority of pituitary adenomas are sporadic, but up to 5% are familial in origin. Familial pituitary adenomas can be associated with the multiple endocrine neoplasia type-1 syndrome or familial isolated pituitary adenoma syndrome (Fig. 2a,b). (2-5)

Familial acromegaly in two French brothers

Acromegaly is a condition in which the body produces too much growth hormone, leading to the excess growth of body tissues over time. Two brothers (226 cm (1887-1914) and 231 cm (1876-1916) tall), are shown with their siblings (opposite page). Their family tree shows the affected brothers (Fig. 2a - black filled in boxes).

Clinically evaluating and investigating a patient with a pituitary adenoma

The clinical features of a pituitary tumour are attributable to three main factors: hormonal secretion, space occupation by the tumour causing mass effect, and varying degrees of hypopituitarism. MRI is the most effective imaging modality for the pituitary gland, and all patients with macroadenomas should also have formal visual field testing (Fig. 3). All pituitary masses should have screening basal pituitary hormone tests.

Classification

1. Clinical hormone-secreting type.
2. Size.
   i) Pituitary adenomas that are less than 10mm in size are classified as microadenomas. They are rarely large enough to cause structural damage, but typically present with excess hormone production.
   ii) Pituitary adenomas that are greater than 10mm in size are classified as macroadenomas, and these can cause problems due to their mass. They can cause headaches, compression of the optic nerve leading to visual defects, invasion of the cavernous sinus (Fig. 1) leading to cranial nerve palsies or hypopituitarism.

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Treatment

The treatment of pituitary tumours is dependent on the clinical presentation of the patient, the size of the pituitary adenoma, location and hormonal type. Three different modalities are commonly used to treat pituitary tumours:

1) Pituitary surgery
   Transsphenoidal surgery is the most common approach. Surgery is the first-line treatment of symptomatic pituitary adenomas, except prolactinomas which are treated first with medical therapy.

2) Medical therapy
   in functioning pituitary tumours, medications are available to control excess hormonal production. These are mainly used post-operatively when hormonal levels remain elevated, except in patients with prolactinomas, where medical therapy is used as first line treatment.

3) Radiotherapy
   Pituitary tumours are radiosensitive, and the growth can be controlled with conventional external beam radiotherapy or radiosurgery.

Pituitary adenomas are common intracranial neoplasms affecting up to 22% of the population, and a small proportion of these will manifest with clinical and biochemical symptoms. They are typically benign, well differentiated and non-metastasising, and can arise from any of the secretory cells.

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Types of pituitary tumours
1) Prolactinomas

Prolactinomas are the most common functioning pituitary tumour. The vast majority are microadenomas and there is a female preponderance.

Clinical features include:
- Galactorrhoea
- Gonadal disturbance
- Mass effect in macroadenomas

Serum prolactin will be raised, so first line treatment is pharmacological with a dopamine agonist such as bromocriptine or cabergoline. Treatment aims to prevent osteoporosis, which can occur in patients with secondary hypogonadism from hyperprolactinaemia. In addition, treatment should stop galactorrhoea, restore oestrogen levels in women and hence menstruation, fertility and libido. In men, treatment of hyperprolactinaemia should normalise testosterone levels and hence erectile function and libido. In patients with macroadenomas, the additional aim is to shrink tumour size to reduce mass effects such as visual disturbance.

2) Acromegaly

Acromegaly is caused when the pituitary tumour produces excess growth hormone (GH) and usually develops between the ages of 30-50. Pituitary gigantism (Fig.2a,b) results from excess GH secretion in children prior to the fusion of the epiphyses. Many of the actions of GH are mediated by the insulin-like growth factor-1 (IGF1) hormone which is secreted from the liver, and the majority of GH secreting tumours are macroadenomas.

Clinical features include:
- Sweating
- Headaches
- Tiredness
- Change in tire or shoe size
- Typical facial appearance
- Mass effect in macroadenomas

GH levels vary throughout the day, but IGF-1 does not fluctuate as much so can be used, along with GH, as a measure of disease activity. In acromegaly there is failure to suppress GH in response to an oral glucose tolerance test, and iGF-1 is elevated.

First line treatment is pituitary surgery. If GH levels are not controlled post-operatively, pharmacological treatment can be used in the form of Metyrapone or Ketoconazole. Bilateral adrenalectomy or radiotherapy may be necessary in severe cases.

4) Non-functioning pituitary adenoma

Non-functioning pituitary tumours are the most common type of macroadenomas. Tumour behaviour is variable, with some growing very slowly, whilst others invade the sphenoid and cavernous sinus.

Clinical features include:
- Headache and visual field defect that is typically a bitemporal hemipapia. Cavernoous sinus invasion can occur with cranial nerve palsies, and hypophysitis can occur as a result of the size of the tumour.
- Microadenomas may be found incidentally during brain imaging for another reason.

Biochemical evidence of hypophysitis is evaluated by testing Prolactin, GH, IGF-I, FSH, LH, testosterone/or oestradiol, TSH, T4, T3, ACTH and early morning cortisol.

Surgery is the initial definitive treatment and radiotherapy may be required as an adjunct, particularly in invasive or aggressive tumours. Hormone replacement therapy is required if there is hypophysitis.

Summary

Pituitary tumours are common neoplasms and are typically benign, slow-growing tumours. Patients can present with symptoms caused by excess hormonal production or symptoms relating to mass effect. Apart from prolactinomas, primary treatment is usually transsphenoidal surgery, and adjuvantive treatment may include pharmacological agents or radiotherapy. Recognition of the patient’s symptoms is critical as a favourable therapeutic outcome is dependent on early identification of the lesion.

References

Hypocalcaemia

Hypocalcaemia is a common clinical problem, with up to 35 cases per 1000 people in Europe. Calcium plays an important role in intracellular and extracellular metabolism, controlling processes such as nerve conduction, muscle contraction, coagulation and electrolyte regulation. As such the effects of hypocalcaemia are multiple and well summed up in the mnemonics ‘Stones, Bones, Groans & Moans’.

Hypocalcaemia causes excess calcium production which exceeds renal capacity for reabsorption. Calcium therefore spills into urine, where it mixes with phosphate and leads to nephrocalcinosis (stones). Hypocalcaemia also causes dehydratation, leading to a corresponding further increase in serum calcium concentration.

It can also increase gastrointestinal production, leading to increased acidity, so peptic ulcers may occur (groans), and neuropsychiatric symptoms can include depression, irritability, and memory loss (moans). Other prominent symptoms include fatigue and weakness.

Most patients present with mild hypocalcaemia and very few overt symptoms, however hypocalcaemic emergencies do exist. Severe hypocalcaemia (>3.75 mmol/l) is considered a medical emergency, and can lead to coma and cardiac arrest. The effects of elevated calcium on cardiac muscle meanwhile include a shortened QT interval and increased risk of cardiac arrest.

Primary Hyperparathyroidism (PHPT):

Primary hyperparathyroidism (PHPT) is caused by excessive secretion of parathyroid hormone (PTH), which leads to increased bone resorption by osteoclasts (bone cells that reabsorb bone tissue), and increased calcium absorption by the kidneys and intestines.

<table>
<thead>
<tr>
<th>Table 1</th>
</tr>
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<tbody>
<tr>
<td><strong>Selected Causes of Hypocalcaemia</strong></td>
</tr>
<tr>
<td>Excess of parathyroid (PTH):</td>
</tr>
<tr>
<td>Ectopic PTH secretion</td>
</tr>
<tr>
<td>Excess of vitamin D:</td>
</tr>
<tr>
<td>Excess of calcium intake:</td>
</tr>
<tr>
<td>Malignancies (e.g. bone deposits, myeloma)</td>
</tr>
<tr>
<td>Drugs:</td>
</tr>
<tr>
<td>Vitamin D and analogues</td>
</tr>
<tr>
<td>Miscellaneous:</td>
</tr>
<tr>
<td>Family hypocalcemic hypercalcaemia</td>
</tr>
</tbody>
</table>

It is by far the most common cause of raised calcium levels, and together with malignancy, is responsible for more than 90% of all cases. Primary HPT occurs most commonly in patients over 50 and affects three times as many women as men. The incidence ranges from 5-20 cases per 1000 adults in different European countries. Other causes of hypocalcaemia may be grouped into those secondary to raised parathyroid hormone (PTH) levels and those mediated by endocrine dysfunction hypothalamic and pituitary dysfunction (see Table 1). In approximately 85% of cases, PHPT is caused by a single adenoma, in the remaining cases, multiple glands are involved. Primary hyperparathyroidism can also be caused by parathyroid carcinoma, but this is rare. Familial cases can occur either as part of the multiple endocrine neoplasia syndromes (MEN 1 or MEN 2a), familial isolated hyperparathyroidism (FIHPT) and familial hypocalcemic hypercalcaemia (FHH).

The diagnosis of PHPT requires an elevated serum calcium level, with simultaneous demonstration of elevated PTH levels (or inappropriately (upper) normal levels in 10% of patients). (See Table 2 over the page)

Measuring urinary calcium excretion over a 24-hour urine collection is important to rule out familial hypocalcemic hypercalcaemia. FHH is associated with low calcium excretion (lower than 150 mg/day) and is not surgically treatable.
There is increasing data to show the benefits and younger patients (<50 years) and for those whose bone with asymptomatic disease. The argument is stronger for may eventually be appropriate in the majority of patients.

Moreover, up to a third of patients who are monitored for surgery in milder and apparently ‘asymptomatic’ cases. Historically, there has been more uncertainty on the role symptomatic subjects. Premature death also appear to decrease after surgery in patients, studies have shown that bone density improves and fracture rate declines after parathyroidectomy, and cognitive function also appears to improve. In patients who had kidney stones before surgery, the incidence declines after surgery. Cardiovascular disease and premature death also appear to decrease after surgery in symptomatic subjects.

All patients with significant and/or symptomatic PHPT should be considered for surgical treatment. Traditionally, there has been a lack of consensus on the role of surgery in milder and apparently ‘asymptomatic’ cases. However, many recent studies report that bone density improves and fracture rate declines after parathyroidectomy, and cognitive function also appears to improve. In patients who had kidney stones before surgery, the incidence declines after surgery. Cardiovascular disease and premature death also appear to decrease after surgery in symptomatic subjects.

Finally, no effective medical therapy for HPT exists, all patients with HPT who are otherwise healthy should be considered for surgical treatment.

Parathyroid Surgery

Since the first parathyroidectomy in 1925, a bilateral exploration of the neck has traditionally been performed to identify all (typically four) parathyroid glands, assess which are normal and remove only these. This is an invasive technique requiring a 5-7cm incision in the neck, with patients remaining in hospital for 1-3 days. It remains the most common technique for many surgical units, particularly for the less common 4-gland hyperplastic disease.

Minimally-invasive keyhole parathyroid surgery:

With the advent of automated blood analysers in the 1970s, most patients are now incidentally identified and present with ‘asymptomatic’ PHPT. For these patients the above-mentioned open surgery became unsatisfactory, and a less invasive alternative was required. Over the last 20 years there have been major advances in surgical technology, allowing for easier and quicker keyhole surgery with improved cosmesis and patient satisfaction.

As the technique allows bilateral neck exploration, it is less dependent on pre-surgery localisation of the abnormal glands, so is suitable for the majority of patients. We have shown a very low conversion-to-open rate (less than 10%), and as the scar is central and symmetrical the final cosmetic outcome is far superior.

Minimally-invasive keyhole parathyroid surgery has become more popular with patients and primary care physicians alike due to its many benefits:-

- Highly effective: 95+% cure rate
- Shorter operation
- Less post-op pain and swelling
- Shorter hospital stays/daycase
- Can be done under local anaesthetic and sedation
- Faster recovery
- Improved cosmesis and patient satisfaction
- Cost-effective

Medical Treatment and Surveillance

Patients not treated surgically should be managed to ensure good hydration and avoid thiocyanate diuretics. In patients with symptomatic and significant hypercaemia, bisphosphonates may be used to lower the serum calcium level, although they are usually not symptomatically effective. Treatment with Cinacalcet (a calcimimetic drug which activates the calcium-sensing receptor and inhibits parathyroid cell function) results in calcium reduction without normalisation of parathyroid hormone levels.

However, it has not shown to increase BMD and evidence of other health benefits is lacking.

Asymptomatic patients who choose not to have surgery should be carefully monitored for overt signs and symptoms of primary hyperparathyroidism on an annual basis, including annual serum calcium and creatinine levels. A 3-site dual-energy radiographic absorptiometry study should also be obtained every 1–2 years (2009 NIH Guidelines).

The co-author to this article is Mr. John Watkins consultant ENT Surgeon at Bupa Cromwell Hospital.

Table 2

<table>
<thead>
<tr>
<th>Condition</th>
<th>Serum Phosphate</th>
<th>Serum Alkaline Phosphatase</th>
<th>Urine Calcium</th>
<th>Urine Phosphate</th>
<th>PTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperparathyroidism</td>
<td>Low</td>
<td>Normal-high</td>
<td>Normal-high</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Vitamin D excess</td>
<td>Normal-high</td>
<td>Low</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Malignancy</td>
<td>Often low</td>
<td>Normal-high</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Granulomatous disease</td>
<td>Normal-high</td>
<td>Normal-high</td>
<td>Normal-low</td>
<td>Normal-high</td>
<td>Low</td>
</tr>
<tr>
<td>Calcium alkali syndrome</td>
<td>Normal-high</td>
<td>Normal</td>
<td>Normal</td>
<td>Normal-low</td>
<td>Low</td>
</tr>
<tr>
<td>Familial hypercalciuric hypercalcaemia</td>
<td>Normal or Low</td>
<td>Normal</td>
<td>Low (&lt;200mg/day)</td>
<td>Normal</td>
<td>High</td>
</tr>
</tbody>
</table>

A careful family history is key in recognising familial forms of primary HPT. In these cases, urinary screening for catecholamine overproduction is important before surgical treatment to exclude a phaeochromocytoma (tumour of the medulla of the adrenal glands).

An evolution of parathyroid surgery has occurred as in surgical technology, allowing for easier and quicker keyhole surgery if the adenoma is not easily identified on the presumed side. Also it is not possible to convert to open surgery if the adenoma is not easily identifiable. In patients who had kidney stones before surgery, the incidence declines after surgery. Cardiovascular disease and premature death also appear to decrease after surgery in symptomatic subjects.

There is increasing data to show the benefits and symptomatic improvements after surgery in ‘asymptomatic’ patients:

- Improvements in neuropsychiatric symptoms and quality of life
- Improved bone density and reduced fracture risk
- Reduced risk for premature death and excessive mortality (cardiovascular disease).

Finally, no effective medical therapy for HPT exists, all patients with HPT who are otherwise healthy should be considered for surgical treatment.

Traditional ‘open’ bilateral neck exploration:

Since the first parathyroidectomy in 1925, a bilateral exploration of the neck has traditionally been performed to identify all (typically four) parathyroid glands, assess which are normal and remove only these. This is an invasive technique requiring a 5-7cm incision in the neck, with patients remaining in hospital for 1-3 days. It remains the most common technique for many surgical units, particularly for the less common 4-gland hyperplastic disease.

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- Cost-effective

Medical Treatment and Surveillance

Patients not treated surgically should be managed to ensure good hydration and avoid thiocyanate diuretics. In patients with symptomatic and significant hypercalcaemia, bisphosphonates may be used to lower the serum calcium level, although they are usually not symptomatically effective. Treatment with Cinacalcet (a calcimimetic drug which activates the calcium-sensing receptor and inhibits parathyroid cell function) results in calcium reduction without normalisation of parathyroid hormone levels. However, it has not shown to increase BMD and evidence of other health benefits is lacking.

Asymptomatic patients who choose not to have surgery should be carefully monitored for overt signs and symptoms of primary hyperparathyroidism on an annual basis, including annual serum calcium and creatinine levels. A 3-site dual-energy radiographic absorptiometry study should also be obtained every 1–2 years (2009 NIH Guidelines).
A world class diagnostic centre in west London

Bupa Cromwell Hospital has launched London’s first Memory Clinic in a private hospital setting. Led by Consultant Psychiatrist Dr Justin Sauer and Consultant Neurologist Dr Angus Kennedy, the Memory Clinic offers assessment and early diagnosis of dementia and other memory related conditions.

An initial consultation is followed by comprehensive, same day diagnostic tests including MRI, leading to prompt diagnosis. Patient care is personalised and may include treatment with medication and risk factor modification.

Dementia investigation at the Memory Clinic is covered by health insurers, and an all-inclusive medication and risk factor modification.

An initial consultation is followed by comprehensive, same day diagnostic tests including MRI, leading to prompt diagnosis. Patient care is personalised and may include treatment with medication and risk factor modification. For further information contact 020 7460 5773 / memoryclinic@cromwellhospital.com.

Bupa Cromwell Hospital has a national reputation for excellence. We offer exceptional diagnostic facilities which are available to everyone, whether insured or ‘self-paying’; all within a five minute walk from High Street Kensington, Earl’s Court or Gloucester Road. Our services include:

- the latest diagnostic technology
- same day appointments, no waiting times and quick test results provided by leading radiologists
- quick referral on to London’s leading consultants if required
- health screening packages to suit every budget
- Women’s Health Centre with female-only specialists

We are currently offering great savings to self-funded patients on all diagnostics from blood tests to X-ray, MRI, CT or PET CT scans. bupacromwellhospital.com

Why did you study medicine?

My father tells me that when I was seven years old I said to him, “I’m going to be a surgeon when I grow up”. I’m not sure why I speculated surgery rather than medicine – it just came out. I used to read a lot of books about it when I was younger and it was just something that I always wanted to do.

What made you pursue your speciality?

I went to medical school thinking I wanted to be a surgeon, then when I got there I was passionate about lots of different areas, from psychiatry to cardiology. I gravitated back to surgery because I like the ‘quick fix’ element, and specifically got into orthopaedic surgery for a number of reasons. The first female surgeon I saw was an orthopaedic surgeon, which was very inspiring, and this specialty gives quick results; patients have surgery, go home and see the benefits very quickly. Finally, unless you’re a trauma surgeon, orthopaedic surgery is done during daylight hours... and I like my sleep!!

What is the most challenging part of your job?

Dealing with people is probably more challenging than the surgery. You have control over the surgery itself – you can plan ahead and preempt complications, but you can’t always tell how patients or staff might react to you. For example some doctors that are junior to me in orthopaedics but older than I am aren’t keen on having someone younger giving them instructions, and some don’t want to have a female ‘boss’.

What is the most rewarding part of your job?

Being able to impact so positively on peoples’ life is very rewarding. Yes, sometimes the hours are very long and there is certainly stress associated with the job, but it is absolutely worth it. To see the patient doing really well afterwards is the most rewarding part.

Can you describe a typical working day?

A typical day in my NHS practice would generally start at 8am with a trauma meeting, where we discuss all the emergency cases that came in the night before. Then I’ll either be in theatre all day or in theatre in the morning then running a clinic in the afternoon. I run my Bupa Cromwell clinics on Monday mornings, where I see patients for consultations, then carry out surgery here on an adhoc basis.

Can you tell us about an achievement that you consider to be significant to your career?

I am apparently the first female Afro-Caribbean orthopaedic consultant surgeon in the UK – I think that’s something to be proud of! It tops it all for me.

What do you enjoy doing in your spare time?

I don’t have much time but I have many hobbies. I really enjoy eating out - food is one of my passions, and seafood or anything spicy are favourites. I also love music and try to get to concerts as much as I can - I recently went to see John Legend which was amazing.

What is your most prized possession?

I try not to be too attached to material things, but it’s probably my phone. When I was young I used to remember everyone’s phone numbers and my mother would ask me all her friends’ numbers because I would memorise them all! Obviously I don’t need to do that any more thanks to my phone, so I’ll be very lost without it.

Where is your favourite place in the world?

Somewhere hot! I am from the Caribbean so feel particularly at home there. I grew up in Guyana and came here to England when I was eleven years old, so I have a strong affinity to the Caribbean.

The best soundtrack for a dinner party is...?

Something cool and mellow... I would say a bit of Luther Vandross... some R’n’B.

If you had one super power what would it be and why?

To see into the future I think, because I am a little bit of a worrier...maybe that’s a female thing!

If you could be any dessert, what dessert would you be and why?

I think I would probably be a crème brûlée... Reflective of my personality - as it’s got a hard surface and then it’s soft and sweet inside.

If you were a movie character who would you be?

It’s got to be an action movie... Wonder Woman!

Miss Samantha Tross
MB BS FRCS(Eng) FRCS Ed(Tr and Orth), Consultant Orthopaedic Surgeon

Miss Samantha Tross is a Consultant Orthopaedic and Trauma Surgeon with general orthopaedic experience and a specialist interest in lower limb arthroplasty. She has undertaken fellowships in Canada and Australia, gaining experience in minimally invasive hip surgery, hip resurfacing, joint revision and knee arthroscopy.

Miss Tross has clinics every Monday morning in our outpatient department.

Consultant
and A

Interviewer

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Differential diagnosis/clues to alternative diagnoses in the wheezy child

Wheeze present from birth:
• Presents immediately, constant wheeze without variation - structural abnormality - e.g. bronchogenic cyst, vascular ring.
• Weak cry, stridor - laryngeal abnormality.
• Signs of heart failure - congenital heart disease.

Wheeze present shortly after birth:
• History of prematurity or ventilation - bronchopulmonary dysplasia.
• Recurrent bacterial infections and failure to thrive (FFT) - immunodeficiency.
• Persistent cough and FFT, family history of chest disease - cystic fibrosis.
• Persistent nasal discharge and otitis media - ciliary dyskinesia.
• Vomiting and aspiration - gastro-oesophageal reflux disease (GORD).

Sudden onset in a previously well child:
• History of choking, unilateral reduced breath sounds - foreign body.
• Persistent wet cough - cystic fibrosis, bronchiectasis, recurrent aspiration, immunodeficiency, ciliary dyskinesia.
• FFT - cystic fibrosis, immunodeficiency, GORD.
• Focal signs in the chest - developmental anomaly, post-infection, bronchiectasis, tuberculosis, foreign body.

Indications for specialist referral in children
• Diagnosis unclear or in doubt
• Symptoms present from birth or perinatal lung problem
• Excessive vomiting or possetting
• Severe upper respiratory tract infection
• Persistent wet or productive cough
• Family history of unusual chest disease
• Failure to thrive
• Nasal polyps
• Unexpected clinical findings e.g. focal signs, abnormal voice or cry, dysphagia, inspiratory stridor
• Failure to respond to conventional treatment (particularly inhaled corticosteroids above 400 mcg/day or frequent use of steroid tablets)
• Parental anxiety or need for reassurance.

ChilDHOOD ASThMA
In Primary Care

Asthma is the most common chronic disease in children in the UK and there is still a significant morbidity associated with the disease despite therapeutic advances. The diagnosis of asthma in children is difficult because of the complex nature of the disorder in the young, so this remains an important challenge in primary care.

The Global Initiative for Asthma (GINA) gives the following definition of the disease: “Asthma is a heterogeneous disease, usually characterised by a chronic airway inflammation. It is defined by the history of respiratory symptoms such as wheeze, shortness of breath, chest tightness and cough that vary over time and in intensity, together with variable expiratory airflow limitation.”

Airway hyper-responsiveness is the characteristic functional abnormality of asthma. It is the predisposition of the airways to narrow excessively in response to stimuli that would produce little or no effect in healthy subjects.

The diagnosis of asthma in children is a clinical one. It is based on recognising a characteristic pattern of episodic respiratory symptoms and signs in the absence of an alternative explanation for them:

• Presence of key features in history and examination
• Careful consideration of alternative diagnoses

Clinical features that increase the probability of asthma
• More than one of the following symptoms: wheeze, cough, difficulty breathing, chest tightness, particularly if these symptoms:
  • are frequent and recurrent
  • are worse at night and in the early morning
  • occur in response to, or are worsen after, exercise or other triggers; such as exposure to pets, cold or damp air, or with emotions or laughter
  • occur apart from colds
  • Personal history of atopic disorder
  • Family history of atopic disorder and/or asthma
  • Widespread wheeze heard on auscultation
  • History of improvement in symptoms or lung function in response to adequate therapy

Clinical features that lower the probability of asthma
• Symptoms with colds only, with no interval symptoms
• Isolated cough in the absence of wheeze or difficulty breathing
• History of moist cough
• Prominent dizziness, light-headedness, peripheral tingling
• Repeatedly normal physical examination of chest when symptomless
• Normal peak expiratory flow (PEF) or spirometry when symptomless
• No response to a trial of asthma therapy
• Clinical features pointing to alternative diagnosis

After the initial clinical assessment, it is usually possible to determine the relative likelihood of asthma in a particular child and the need for further investigations:

High probability of asthma
• Start a trial of treatment
• Review and assess response.
• Reserve further testing for those with a poor response.

Low probability of asthma

Consider more detailed investigations and referral, particularly where an alternative diagnosis seems likely.

Intermediate probability of asthma

In some and especially those aged under 4-5 years, there may be insufficient evidence to make a firm diagnosis. Approaches in this instance include:
• Watchful waiting with review.
• Trial of treatment with review - where beneficial, treat as asthma.
• Spirometry and reversibility testing.

Lung function tests include spirometry before and after bronchodilator (test of airway reversibility) and possible exercise or methacholine challenge (tests of airway responsiveness).Spirometry is usually possible from about five years old, although there is wide variation, and is dependent on the child’s co-operation and comprehension of the task.

Diagnostic tests such as PEFR and forced expiratory volume in one second (FEV1) can provide objective measures of airways obstruction.

Evidence of airways obstruction is found: Look for changes in PEFR or FEV1 ten minutes after the use of a bronchodilator (reversibility usually taken as >12% subsequent improvement in lung function). Also, look for a response to a treatment trial over a defined time period, as this adds further weight to the diagnosis of asthma.

No evidence of airways obstruction is found: Consider referral and testing for:
• Atopic status (skin tests, blood eosinophilia or raised specific immunoglobulin E (IgE) to cats, dogs or mites).
• Bronchodilator reversibility.
• Bronchial hyper-responsiveness (with methacholine, exercise or mannitol) - high negative predictive value (86-100%) but less useful as a positive predictive tool (55%). (These tests are not normally available within primary care).

Risk factors
• Personal history of atopy
• Family history of asthma or atopy
• Triggers (e.g., allergens such as pollens, animal dander), dust, exercise, viruses, chemicals, weather changes, emotional factors, irritants and smoke
• Urban environment
• Socio-economic stresses
• Obesity
• Prematurity and low birth weight
• Viral infections in early childhood
• Maternal smoking
• Smoking
• In vitro fertilisation
• Early exposure to broad-spectrum antibiotics

To make an appointment please call 0800 783 9229

Dr Jamal Karwan MB ChB
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MRCP (UK) is Clinical Director of General Practice at Bupa Cromwell Hospital.
Management of Primary Hypothyroidism

Primary hypothyroidism is an insidious condition with a significant morbidity and often subtle and non-specific symptoms and clinical signs. The earliest biochemical abnormality is an increase in serum thyroid-stimulating hormone (TSH) concentration associated with normal serum free triodothyronine (T3) and triiodothyronine (T4) concentrations. This ‘subclinical hypothyroidism’ is followed by a decrease in serum free T4 concentration, which leads to overt hypothyroidism, at which stage most patients have symptoms and benefit from treatment. In the UK, the prevalence of spontaneous hypothyroidism is between 1% and 2%. It is ten times more common in women than in men, and more likely to affect older women. The cause is either chronic autoimmune disease or destructive treatment for hypothyroidism with either radioiodine or surgery, which may account for up to a third of all cases of hypothyroidism.

Every day over one million people in the UK take the thyroid hormone levothyroxine sodium (L-T4), but few are aware of the controversies that have surrounded the treatment of hypothyroidism for over a century. From the first injections of sheep thyroid in 1881 to academic rivalry around the identification of T4, and the ongoing debate over the advantages of combining L-T4 with liothyronine (L-T3), boosting a sluggish thyroid has never been straightforward.

The goal of therapy is to restore patient wellbeing and normalise serum TSH levels. Most patients respond well, and in the majority, overt hypothyroidism is on the wane. However, some patients are not happy with L-T4 treatment is that they are not getting their supply of T3 in a physiological way, as all of it is coming from the conversion from T4.

Some practitioners have advocated going back to using pig thyroid extracts, but the balance of T4 and T3 that patients get from this is far from natural. The pig thyroid produces T4 and T3 in a ratio of 4:1, compared with the ratio of 14:1 in human thyroid. Setting aside the issue of the “unnatural” ratio of hormones in pig tissue, would patients be better off with potentially more physiological combination treatment with synthetic human L-T4 and L-T3 than with L-T4 monotherapy?

In 2013 the European Thyroid Association (ETA) reviewed 1,355 patients in 13 randomised controlled trials of L-T4 + L-T3 versus L-T4 monotherapy. Study design, duration of treatment and the ratio of T4 to T3 were variable. In studies that considered quality of life, cognition, mood and symptoms, combination therapy was no better than monotherapy in nine out of 12 studies, but better in three.

Data was analysed from six trials in which patients were asked to state a preference for treatment, and 48% preferred combination treatment, 27% preferred monotherapy and the rest had no preference. The ETA concluded that there was insufficient evidence in the literature to show that combination treatment is more effective than monotherapy, and recommends that clinicians should rule out autoimmune disease associated with thyroid autoimmunity, reassure patients about their condition, and support them in coming to terms with a chronic disease requiring life-long medication. If symptoms still persist for six months or more, endocrinologists may consider combination treatment on an experimental basis. When this is appropriate, the ETA suggests that treatment should be started in L-T4+L-T3 doses to between 150 and 201 μg by weight, and that L-T3 should be divided in two doses.

The GP Quality and Outcomes Framework (QOF) targets thyroid for England encourage regular monitoring of patients with hypothyroidism. This may demonstrate greater fluctuations in thyroid levels than previously realised, and a tendency for micromanagement of L-T4 dosing in primary care, whether or not this is indicated by a patient’s symptoms.

Delivering individualised, patient-centred care and shared decision making is key with primary hypothyroidism.

People now have high, sometimes unrealistic expectations about how energetic they should feel, but that does not mean that tiredness and symptoms such as “brain fog” should be ignored. L-T4 is considered the most perfect hormone replacement that has yet been devised for endocrine conditions, but there are undoubtedly people who fall outside the current treatment model.
We would love to hear from you. Please let us know what you think of the magazine and any topics you’d like to see in the next issue.

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