

Review of a patient with acute onset low back pain, leading to a diagnosis of cauda equina syndrome: a case-study from primary care advanced nurse practitioners

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Abstract

One of the most common symptoms managed in primary care is lower back pain which affects approximately 20% of the UK population at any one time, (National Collaborating Centre for Primary Care (UK), 2009). There are many differential diagnoses for the cause of back pain, with one such potential diagnosis being Cauda Equina Syndrome. In this instance, it is of paramount importance that the correct diagnosis is reached quickly with urgent referral into secondary care for the instigation of treatment to prevent paralysis. This case review will examine a patient presenting to primary care with lower back pain and diagnosed with Cauda Equina Syndrome.

Introduction

The incidence of patients presenting to their primary care practice with new onset lower back pain, (LBP) affects around 20% of the UK population at any one time, (National Collaborating Centre for Primary Care (UK), 2009). It is cited among the most common symptoms managed within primary care, (Greenwood and Shipley, 2017), with a myriad of potential diagnoses, (Innes, Dover and Fairhurst, 2018). With the relatively new addition in extended roles of the primary care advanced nurse practitioner (ANP), it is paramount that they are able to safely assess, examine, diagnose, and manage this generic symptom effectively.

One less common, albeit time-critical condition to consider with LBP is Cauda Equina Syndrome, (CES), (Long, Koyfman and Gottlieb, 2019). Much of the literature indicates the complexity yet urgency of the diagnosis, instigating the need for a robust clinical history and examination to be performed. Emphasis has been placed on ensuring risk stratification and red flag criteria be addressed, (NICE, 2021).

This paper will discuss in detail a case-study of a patient who was reviewed in a GP practice by an advanced nurse practitioner displaying symptoms of new onset LBP, with associated radiation of sciatic pain down one leg, (table 1). Discussion will involve synthesis of the symptoms presented, with emphasis on the advanced clinic decision making by ANPs within primary care. An evaluation consolidating the diagnosis of CES via a review of the history and clinical examination will be sought. Analytical debate, utilising current knowledge and evidence-based research available around the condition will be also be demonstrated. There will also be attention around differential diagnoses that these symptoms may present, leading to a conclusion of the overall clinical management plan and considerations that should be made by ANPs that work within the primary care sector.

Cauda Equina Syndrome

CES is documented as a rare and challenging neurological condition to diagnose, (Greenhalgh et al, 2018). It is defined by Zusman et al (2020) as a significant compression of the nerve roots within the spine via full or partial occlusion of the nerve pathways, leading to a reduced or absence of lower sacral nerve function, caused by a multitude of potential aetiology.

The cauda equina, (CE) comprises a set of 20 nerve roots originating from the conus medullaris, found at the terminal end of the spinal cord, (Finucane et al, 2020). Long, Koyfman, and Gottlieb (2019) illustrate that this group of nerves resemble strands of the horse's tail, giving rise to the Latin phrase "cauda equina". A French anatomist, Andre Du Laurens in 1595 coined the term due to its appearance, (Quaile, 2018). The CE is housed within the spinal canal at Lumbar region L1-L5, through into the sacral region S1-S5, and coccygeal region 1-3. The lumbar and sacral nerve roots lead into the sacral plexus, which contains the largest and longest nerve in the body, the sciatic nerve, (Kavanagh and Walker, 2012). These nerve roots are responsible for various sensations and motor activity of the lower extremities, via their action potentials, controlling both voluntary and involuntary reactions through the sympathetic and parasympathetic nervous systems, (Scioscia, 2017).

The spinal column contains several structures including, vertebrae, discs, nerves, muscles, ligaments, and vasculature. If any of these structures are compromised this can lead to reactive, degenerative and inflammatory responses. Vertebral discs are made up of water and collagen, acting as shock absorbers to stressors of the spine. Disc degeneration, and/or bulging can occur due to time, trauma, continued stress, or pathological changes, (Eames, 2020). Kavanagh and Walker (2012) corroborate the above compression theory.

There are many documented causes of CES, however Grasso, Munakomi and Salli (2020) report 45% of cases originate from disc herniation. Other causes mentioned by Greenhalgh et al (2018) include traumatic injury, spinal lesions, infections, such as osteomyelitis of the spine, arthritis, vascular lesions, osteoporotic fractures, malignancy or metastases, and spinal stenosis,

CES was first publicised in 1929 by Dandy, cited by Caputo and Cusimano (2002) as a condition with high risk of disablement, and increased levels of medico-legal, surgical, and socioeconomic implications. It therefore requires immediate referral for acute investigation, and timely surgical intervention, namely spinal decompression, (Mayo and Herdman, 2020). Woodfield et al (2018), and Mizra et al (2020) both report an estimated incidence in the UK of 1.9 patients per 100,000 people, with 15-31 diagnosed patients within any single UK tertiary centre per year. Finucane et al (2020) quantify an overall prevalence ranging between 1 in 33,000, to 1 in 100,000. Greenhalgh et al (2018) cite a low prevalence of patients within primary care at 0.002% yearly. This means the likelihood of a GP/ANP seeing a true case of CES is one in their career. Eames (2020) adds that many GPs/ANPs will never see a true case.

Despite its scarcity within primary care, it has huge implications on both the patient, and health services, therefore ANPs need to consider the signs and red flags when assessing such patients. The costs to the patients' long-term recovery and rehabilitation, both physically and psychologically has been well documented. It can impact on all activities of daily living, including reduced mobility, incontinence, and lack of sexual function.

Screening and timely referral is therefore deemed paramount as mentioned in guidelines worldwide, (Germon et al, 2015).

Financial burden

There is a huge financial burden attached to CES. This is mainly in regards to litigation claims, (Quaile, 2018). Kavanagh and Walker (2012) reported a high incidence of upheld medical defense union claims in 2004, equating the average pay out per patient as £336,000. Mizra et al (2020) state that between 2010-15, there were 293 claims relating to CES, with a total of £25 million compensatory payouts. CES equates to around 23% of claims in England alone, blamed on missed or delayed diagnosis, (Eames, 2020).

Risk factors

Demographically Long, Koyfman and Gottlieb (2019) suggest a correlation of age below 55 years, females, and obesity with CES. Quaile (2018) agrees with obesity, however disagrees on age and gender, proposing previous surgical intervention as a risk factor. Kaiser et al (2020) disputes age and obesity as risk factors, citing small retrospective studies coupled with the low incidence of CES, creates uncertainty in attributing true demographic risk factors. Despite this, many guidelines include the above as considerations when stratifying risk of CES, (Finucane et al, 2020).

Cauda equina symptoms

The symptomology of CES is centre of much debate within the literature. Caputo and Cusimano (2002) discuss CES symptoms as involving LBP, bilateral sciatica, lower motor and sensation dysfunction, with disruption of urinary or bowel function. Zusman et al (2020) add that symptoms vary, although should include bilateral sciatica. Khot, and Polmear (2006), and Kinirons and Ellis (2005) agree with this. Long, Koyfman, and Gottlieb (2019) indicate a low threshold for investigation of any LBP to rule out CES. Germon et al (2015) introduces the presence of LBP and/or sciatica, with bladder/bowel instability, and/or saddle anesthesia need urgent referral for investigation. Two papers, Pronin et al (2019), and Kaiser et al (2020), omitted the presence of LBP or sciatica as

primary factors of CES. They credit most important symptoms to be saddle anesthesia, bowel/bladder/sexual dysfunction, and loss of lower extremity sensation or function. Publication of a White Paper on CES by Wilkes (2019), found that relying on the symptoms of bladder/bowel dysfunction, or sensory/motor loss, may be a late sign of CES, therefore damage from compression had likely already occurred.

Thakur et al (2017) and Quaile (2018) summarise CES as a collection of symptoms, with no bias to the most common, incorporating any impairment of the main functions of the nerve roots within the CE. Zusman et al (2020) agree with the above, emphasising symptoms depend on the degree of nerve root occlusion. In response to conflicting CES symptoms, Finucane et al (2020) reviewed international papers to provide a robust framework for assessing and sign-posting potential patients with CES for urgent investigation, aiding clinicians from any background to effectively triage patients.

Presenting complaint of case

The presenting complaint within the case-study was LBP with sciatica. LBP is attributed as one of the most common complaints within primary care, with 15-20% of patients at any time complaining of this. 60% of adults will have suffered LBP within their lifetime, ranging from traumatic or mechanical manifestations, to more complex vascular and neurological conditions, (Knot and Polmear, 2006). Finucane et al (2020) report a 0.004% prevalence of LBP within primary care caused by CES. Long, Koyfman, and Gottlieb (2019) concur with this. Greenhalgh et al (2018) found 1% of all LBP was attributed to CES in a 1994 study. Although LBP was found to be present in patients diagnosed with CES by Kavanagh and Walker (2012), they highlight it was not the most sensitive symptom without the presence of other lower extremity factors, as within this case.

Sciatica

Sciatica becomes a more specific symptom, indicating potential nerve root compromise, (Eames, 2020). The causation of pain and radiation into one or both legs are thought to be caused by the occlusion of any nerve roots within the lumbosacral region, (Ahad, Elsayed, and Tohid 2015). Sciatica is a misunderstood term by some clinicians and

patients alike. Kinirons and Ellis (2005) highlight true sciatica involves pain that radiates into the buttocks, down into the thigh, lateral or posterior aspect of calf, into the ankle then foot, leading to reduced extension of toes, and straight leg raise (SLR). This is supported by Germon et al (2015) as a sign to consider urgent referral for MRI scanning.

Much discrepancy lies within the literature regarding bilateral and unilateral sciatica. Bilateral sciatica is highlighted in NICE (2020) red flags for CES. Longmore, Wilkinson, and Torok (2003) conflictingly mention asymmetrical sciatica in CES. UKSSB (2020), explain that there is poor evidence-base on bilateral sciatica, as research is largely based on small retrospective studies within secondary care. They suggest consideration of unilateral symptoms progressing to bilateral being a red flag. Domen et al (2009), cited by Kavanagh and Walker (2012) found that the presence of bilateral sciatica was not statistically significant, whereas LBP and urinary retention was present in 75% and 87.5% of the patients in the small single-centre trial. Many papers read contradict the need for bilateral leg symptoms. Higginson et al (2020) support the view of huge discrepancies within CES symptomology, proposing further research involving longer and larger prospective studies.

Abnormal gait

On cursory observation of the case-study patient, an abnormal gait was exhibited. Initial inspection forms the first part of any clinical examination, particularly musculoskeletal and neurological, highlighting obvious abnormalities, (Model, 2006). The patient walked into the consultation on tip toes with grimaced face. Innes, Dover, and Fairhurst (2018) mention gait change as a red flag sign for CES. This was the only reference to gait within the literature read. It likely relates to the effects of pain sensors, release of adrenaline, and neurotransmitters within the body that control balance, and muscle tension, (Swift, 2018).

History taking

Finuacane et al (2020) advocate deep exploration of the history of symptoms, providing examples of questioning that are useful to extrapolate more succinct information. This

improves documentation of the presenting findings. Through further history taking, adopting the acronym SOCRATES, as per Innes, Dover, and Fairhurst (2018), the patient reported sudden, sharp pain without trauma, worse around lumbar region and buttocks. It increased on movement and sitting down, and did not respond to analgesia.

Following the presenting symptoms, a history of the complaint was sought. The patient reported poor bladder and bowel control recently, urge incontinence. They did not associate this with their LBP due to recent childbirth. Pronin et al (2019) discussed this, implicating lack of relevance, and the sensitive nature of symptoms deterring patients from reporting this during history taking. Greenhalgh et al (2018) therefore encourage clinicians to use careful and appropriate language, to ensure thorough accurate symptoms are explored.

Quaile (2018) found a consensus of bladder instability for possible CES, citing in nine guidelines internationally. Woodfield et al (2018) mention bowel/bladder problems to be the main concerns of CES, likely causing lasting neurological deficit, thought to have a direct relation with the degree of compression. Grasso, Munakomi and Salli (2020) categorise CES into two types; complete and incomplete compression. Incomplete was seen more favourable to identify, displaying symptoms of bladder bowel incontinence, potentially leading to improved recovery. Complete was found to cause urinary retention, and constipation rather than incontinence. This would therefore indicate that the patient in the case-study was likely incomplete CES.

During the history-taking, the patient was asked if they had experienced any lack of sensation of their buttocks, and/or genital area. Finucane et al (2020) suggest asking patients about numbness in buttocks, and/or genitals, as saddle anesthesia is a strong predictive factor in CES due to the involvement of sacral nerve compression. Kavanagh and Walker (2012) recognise that the majority of disc herniations occur at L4/L5, and L5/S1 around the sacral plexus, which is responsible for anal tone, and genital sensation. As in the case-study, Greenhalgh et al (2018) report not all patients will recall slight changes in bladder or bowel, as well as numbness or lack of sensation in buttocks or

genitals due to the amount of pain they are experiencing. They may also see it as a sign of improvement in pain.

Pronin et al (2019) indicated a considerable lack of awareness, and questioning around sexual dysfunction in a small, single-centre audit. Despite conducting an awareness of the need to ask about sexual dysfunction in suspicion of CES, they still found poor documentation among clinicians on asking this question despite its potential devastating consequences. This was attributed to sociocultural barriers, and lack of initiative to ask or report due to its sensitive nature.

Consideration of CES signs were sought from the past medical, drug, and family history, alongside psychosocial and significant risk factors. Greenhalgh et al (2018) discusses importance of previous medical and surgical history, as disc prolapses, stenosis, malignancy, and other co-morbidities, such as Multiple sclerosis can mimic CES. Mayo, and Herdman (2020) highlight acute aortic thrombus, and pelvic masses also imitate CES. The case-study patient reported a strong psychological history, involving domestic abuse, which according to UKSSB (2020) needs consideration when suspecting CES. Previous physical violence and abuse should not be ignored, as the patient may have sustained previous injuries that may not be divulged due to the sensitive subject. A literature search was conducted with key words of CES, and physical abuse/domestic violence, however, no articles were found. It is worth noting that history of physical abuse and depression can alter perception of pain, either by increasing or decreasing the sensitivity, (Swift, 2018).

Certain medications can mask CES symptoms. For example, the patient was taking an antidepressant which can alter pain perception due to neurotransmission blocking. Long-term use of Lamotrigine can lead to osteoporosis, which is a risk factor for developing CES, (Meier, and Kraenzlin, 2011). Ibuprofen can increase the likelihood of urinary retention due to renal toxicity, (Greenhalgh et al, 2018). No correlations with smoking or amphetamines use with CES found.

There was little evidence found regarding the incidence of CES after labour. Jones et al (2015) hypothesised difficulty of diagnosing CES due to the presentation, and expectancy of pain, and bowel/bladder incontinence after birth.

Clinical Examination

Following history-taking a clinical examination took place, involving vital signs. Slightly raised respiratory, and heart rate were demonstrated, supporting the patient's complaints of severe LBP, (Swift, 2018). A physical assessment using the MSK system, look, feel, move process was conducted, (Innes, Dover, and Fairhurst, 2018). Greenhalgh et al (2018) negates the need for full neurological examination due to the potential sensory symptoms common in CES. Higginson et al (2020) advises bladder palpation, and/or bladder scanning may aid confirmation of urinary retention, although bladder scanning is not always available in primary care.

Quaile (2018) prioritised the need to assess saddle anesthesia, and anal tone via digital rectal examination, (DRE), with Greenhalgh et al (2018) adding the need for clinicians undertaking such examination to be adequately trained, and mindful of having a chaperone due to its sensitive, and invasive nature. DRE is however disputed by several authors including Pronin et al (2020). UKSSB (2020), state that DRE is a poor indicator of CES alone. NICE (2020) advise to consider anal tone, although not to perform DRE in primary care setting. Long, Koyfman, and Gottlieb (2020) suggested that the anal wink test is more appropriate, and less invasive.

Lower limb weakness or radiculopathy assessment, including reflexes is recommended by Greenhalgh et al (2018). The patient was found to have a reduced SLR unilaterally of the left leg. Khot, and Polmear (2006) evaluate reduced SLR as a highly sensitive indication of nerve root compression. This is supported by Kinirons, and Ellis (2005), who add this alongside limb pain as possible CES signs. Diminished reflexes are discussed by Long, Koyfman, and Gottlieb (2020) indicating patella, achilles, and bulbocavernosus reflexes directly represent L4, S1, and S2-4 regions.

On evaluation of the symptoms within the case-study, it became apparent that there was a diagnosis of sciatica. However with the additional neurological symptoms demonstrated, based on the current evidence it would be neglectful to ignore the red flags indicating CES. UKSSB (2020) strongly oppose the neglect of such findings, requiring a good documented reason for lack of referral for immediate MRI.

Differential diagnoses

Differential diagnoses included disc herniation, spinal abscess, tumour, infection, fracture, or stenosis. However, Finucane et al (2020) highlight abscess or tumours may incur nighttime sweating symptoms, and fracture or stenosis tend to present in the older population, thus not fitting the case-study. All differentials above require further specialist management including MRI. They are also all precursors to CES, (Greenhalgh et al, 2018). With limited time, resources, and specialist expertise within primary care, it is therefore essential to refer the patient in a time-critical manner, for appropriate investigation and management, via discussion with the spinal team and admission to A+E (Eames, 2020).

Emergency referral pathways were discussed in the literature, emphasising timing and presentation of key symptoms being precursors for immediate referral, (Eames, 2020). These pathways vary regionally dependent on local agreement, however should involve MRI as gold standard, (UKSSB, 2020). Greenhalgh et al (2020), places importance on all clinicians including the relatively new role of Primary care ANPs being responsible for their knowledge and awareness of CES. This is especially advantageous in primary care, as exposure to the condition is low.

Communication

Communication is essential, requiring a patient-focused and unambiguous approach, with succinct documentation essential when referring to spinal team or A+E, reducing any delay in surgical intervention. As Pronin et al (2019) found, poor communication with either patients or colleagues can lead to inappropriate management of CES. To combat this, Greenhalgh et al (2018) and Finucane et al (2020) suggest all patients with LBP be

given written cue/credit cards, highlighting the above symptoms for safety netting. Reassuring the patient of the rationale, to avoid further reluctance or delay of treatment, (Eames, 2020).

Conclusion

CES is a time-critical condition requiring emergency spinal decompression surgery. It is paramount that a thorough clinical history and examination is undertaken within primary care (NICE, 2020). Due to its complexity in symptomology and presentation, ANPs need to engage in careful questioning and assessment using current clinically recognised red flags, (Finucane et al, 2020). There should be a low threshold for referring for immediate MRI scan when LBP with sciatica, and bladder/bowel dysfunction, and/or saddle anesthesia are present (UKSSB, 2020).

Diagnosis of CES

After a detailed clinical history, MSK, and neurological examination of the case-study patient; severe LBP, with unilateral sciatica, bladder/bowel incontinence, saddle anesthesia, and reduced SLR, with absent reflexes of knee, and achilles were found. The above symptoms were identified as potential CES signs, alongside other less urgent diagnoses. Due to the high risk of missed or delayed diagnosis of CES discussed within this paper, the patient was referred to A+E for MRI, as per current guidelines, (NICE, 2020). An incomplete L4/L5 disc prolapse was found, and operated on within 12 hours.

Although documented as a rare condition found in primary care, CES is a devastating and disabling condition for the patient, with potential long-term effects, that can be identified earlier as found within this case-study, (Greenhalgh et al, 2018). Colleagues across primary care including Nurses and ANPs should be aware of the potential presentation as above, and the value of a thorough, and evidenced-based approach to the physical examination of a patient presenting with sudden onset of LBP, and sciatica, (Finucane et al, 2020). Additionally, ensuring that patients are encouraged to discuss sensitive information using clear language that could aid diagnosis is also recommended, thus leading to an appropriate and accurate referral, (Pronin, et al 2019).

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Table 1

Age: 26
Gender: Female
History of presenting complaint and symptom: Patient attend GP surgery to see ANP <ul style="list-style-type: none">• 1 month history of sharp shooting lower back pain with radiation into left buttock and down into calf• Worse on movement or sitting down• Relieved by walking on tip toes only• Not responding to Paracetamol and Ibuprofen taken regularly• Also reported noted poor bladder and bowel control stating having to rush to toilet.• Denied any recent trauma but noted normal delivery of baby 10 months ago.• No recent/previous surgical intervention
Past medical history: <ul style="list-style-type: none">• Depression Personality disorder and post traumatic syndrome (Under MHT)• Victim of Domestic abuse by Dad and x2 ex partners• Self-harm cutting wrists 2015• Deliberate Overdose of medication 2016
Drug history: Citalopram 40mgs od Lamotragine 50mgs bd Paracetamol 1g qds Ibuprofen 400mgs tds <ul style="list-style-type: none">• Denies use of any herbal remedies• Admitted to use of Amphetamines 2 and half years ago none recently

Table 1

Allergies: None known
Social History: <ul style="list-style-type: none">• Lives in a first floor flat alone with 10 month old baby boy• Has on off relationship with baby's father strained relationship at present due to loss of partner's brother.• No pets in house• No recent foreign travel or long journeys taken
Family History: <p>Difficult upbringing patient unaware of any family past medical history due to this.</p> <ul style="list-style-type: none">• Dad physically abusive• Mum left her aged 8 year old with two siblings younger, Was in foster family until aged 16.
Risks: <ul style="list-style-type: none">• Current tobacco cigarette smoker for last 10 years of 4-8 a day• Previous history of illicit drug use of Amphetamines denies recent use• Alcohol intake occasional less than 2 units a week.• No previous history of Alcohol excess.
Investigations and examination findings:

Table 1

Patient walked into the examination room on tip toes showing signs of pain in posture and anxiety.

Unable to sit comfortable on chair. Preferred to stand

Colour normal.

Slight build but denies any recent sudden weight loss apart from since pregnancy 10 months ago

- **Weight 59kgs height 1.63cm**
- **BMI 22.1**
- **HR 98 and regular good strong radial pulse felt**
- **Oxygen saturation 98% on Room air**
- **Resps 22 minute**
- **BP 109/60 no postural drop**
- **Temperature 37.0**

MSK and neurological examination performed

- **Normal spinal presentation no lordosis or scoliosis**
- **Tenderness on palpation of lower back no palpation of lumps**
- **Numbness Loss of sensation to both buttocks**
- **Right leg normal extension/ flexion and rotation of hip knee and good range of movement**
- **Normal reflexes throughout right leg**
- **Straight leg raising of left leg unable to raise leg past 40 degrees**
- **Diminished knee and achilles reflexes to left leg.**

Differential Diagnosis(s)

- 1. Cauda equina syndrome**
- 2. Sciatica**
- 3. Recent traumatic spinal disc herniation**

Table 1

<ul style="list-style-type: none">4. Spinal abscess/tumour5. Spinal fracture6. Spinal stenosis
<p>Potential management /referrals/communication</p> <p>Referred straight to A+E due to nature of presentation and red flags of saddle anaesthesia and loss of bowel and bladder control to rule out Cauda equina syndrome.</p> <p>Copy of consultation and examination sent with patient to A+E</p>

Appendix 2

Heading	Question	Common answer(s)
Site	Where is the pain?	TMJ, muscles of mastication, one or both sides
Onset	When and how did the pain start?	More than 3 months ago, gradually
Character	What is the pain like e.g. sharp, dull, stabbing?	Dull, tenderness
Radiation	Does the pain spread anywhere?	Temple, ear, eye, one or both sides
Associations	Does anything else happen at the same time	Clicking of jaw joint, stiffness of jaw joint(s)
Timing	Does the pain follow any pattern?	Worse first thing in the morning, intermittent
Exacerbating/ Relieving factors	Does anything make the pain better or worse?	Better: painkillers, relaxation, holidays Worse: stress, eating, yawning
Severity	How bad is the pain out of 10?	Variable

Table 1: A pain history for TMDs using the 'SOCRATES' acronym. The right hand column provides common answers to these questions

Table 1: case history, examination, differential diagnoses

Age: 26
Gender: Female
History of presenting complaint and symptom: Patient attend GP surgery to see ANP <ul style="list-style-type: none">• 1 month history of sharp shooting lower back pain with radiation into left buttock and down into calf• Worse on movement or sitting down• Relieved by walking on tip toes only• Not responding to Paracetamol and Ibuprofen taken regularly• Also reported noted poor bladder and bowel control stating having to rush to toilet.• Denied any recent trauma but noted normal delivery of baby 10 months ago.• No recent/previous surgical intervention
Past medical history: <ul style="list-style-type: none">• Depression Personality disorder and post traumatic syndrome (Under MHT)• Victim of Domestic abuse by Dad and x2 ex partners• Self-harm cutting wrists 2015• Deliberate Overdose of medication 2016
Drug history: Citalopram 40mgs od Lamotragine 50mgs bd Paracetamol 1g qds Ibuprofen 400mgs tds <ul style="list-style-type: none">• Denies use of any herbal remedies

- **Admitted to use of Amphetamines 2 and half years ago none recently**

Allergies: None known

Social History:

- **Lives in a first floor flat alone with 10 month old baby boy**
- **Has on off relationship with baby's father strained relationship at present due to loss of partner's brother.**
- **No pets in house**
- **No recent foreign travel or long journeys taken**

Family History:

Difficult upbringing patient unaware of any family past medical history due to this.

- **Dad physically abusive**
- **Mum left her aged 8 year old with two siblings younger, Was in foster family until aged 16.**

Risks:

- **Current tobacco cigarette smoker for last 10 years of 4-8 a day**
- **Previous history of illicit drug use of Amphetamines denies recent use**
- **Alcohol intake occasional less than 2 units a week.**
- **No previous history of Alcohol excess.**

Investigations and examination findings:

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Potential management /referrals/communication

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