

Neuropsychiatric aspects of Chronic Pain

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MESSAGE FOR TODAY

"The presence of many lawyers and many physicians is a manifest sign of a distempered, melancholy state ... of an insensible plague ... and for the most part of a supercilious, bad, covetous, litigious generation of men. A purse-milking nation, a clamorous company of gowned vultures, thieves and seminaries of discord ... a company of irreligious harpies and scraping catchpoles"

Robert Burton 1652
Anatomy of Melancholy



Chronic Regional Pain Syndrome

- Apparently may not actually include pain!
- Many complainants do not fit the criteria.
- 50% have no identifiable precipitant.
- Pain is not proportional to any identifiable precipitant.
- There is no objective independent measure of pain.
- "A clinical diagnosis" – i.e. no consistent abnormalities on investigation
- There is no agreement as to causal mechanism.



"Probably it may be an idiosyncratic response to or consequence of some initiating event that generates the condition."

G Schott Pract Neurol 2007

Chronic? Regional? Pain? Syndrome?

A video

- Publican trips over low chain at work
- Hospital say he may have broken wrist
- In plaster 7 days, then found no fracture
- Progresses as follows :

A suspicious plethora of names:

- Causalgia
- Sudeck's Atrophy
- Algodystrophy
- Allodynia
- Reflex Sympathetic Dystrophy
- Complex Regional Pain Syndrome (I and II)
- Somatoform Pain Disorder
- +/- Psychogenic Dystonia
- A neurological definition:
"A funny pain in a funny looking limb."
G D Schott 2007
Complex? Regional? Pain? Syndrome?

Can psychiatry do any better?

Psychiatric classifications

- International classification of mental and behavioural disorders, Tenth edition 1992
WHO (**ICD-10**)

Diagnostic and Statistical Manual of mental disorders, Fourth edition-Text revision
2000 APA (**DSM IV**)

SOMATOFORM DISORDERS (DSMIV)

- "The presence of physical symptoms that suggest a general medical condition (hence the term *somatoform*) and are not fully explained by a general medical condition, by the direct effects of a substance or by another mental disorder (e.g. Panic Disorder).
- The symptoms must cause clinically significant distress or impairment in social, occupational or other areas of functioning.
- In contrast to Factitious Disorders and Malingering, the physical symptoms are not intentional (i.e. under voluntary control).

SOMATOFORM DISORDERS

- Somatisation Disorder: Polysymptomatic onset before 30 years, on-going, threshold of complaints.
- Undifferentiated Somatoform Disorder: Below threshold for Somatisation Disorder.
- Conversion Disorder: Unexplained symptoms (usually "neurological") Psychological factors judged to be associated.
- Pain Disorder: Pain is the predominant focus of clinical attention. Psychological factors judged important.
- Hypochondriasis: Preoccupation with fear of having serious disease
- Body Dysmorphic Disorder: Preoccupation with imagined bodily defect
- Somatoform Disorder Not Otherwise Specified.

A range of probable somatoform disorders – (entre nous)

- Chronic Fatigue Syndrome
- Fibromyalgia
- Irritable Bowel Syndrome
- Da Costa's Syndrome.
- Syndrome X
- Premenstrual Syndrome
- Pellipathia Vegetativa
- Whiplash syndrome
- etc. etc.

DSM IV – TR

Pain Disorder:

- A "Pain is the predominant focus of the clinical presentation and is of sufficient severity to warrant clinical attention".
- B Pain causes significant distress or impairment in social, occupational or other important areas of functioning.
- C Psychological factors are judged to have an important role in the onset, severity, exacerbation or maintenance of the pain.
- D The symptom or deficit is not intentionally produced or feigned.
- E The pain is not better accounted for by Mood, Anxiety or Psychotic Disorders.

Acute: less than 6 months Chronic: more than 6 months

DSM IV - TR

Pain Disorder: Associated with psychological factors (I.e. "play a major role")

Associated with both psychological factors and a General Medical Condition.

N.B. If "Associated with a General Medical Condition" it is not considered a mental disorder.

PROBLEMS WITH DSM IV DEFINITION OF "PAIN DISORDER"

- A diagnosis of exclusion.
- Based on a single symptom.
- No requirement for psychological *aetiology*.
- A diagnostic problem not a discrete syndrome.
- Why included in psychiatric classifications at all?
- "The concept of somatoform pain disorder is virtually meaningless to a psychiatrist".

Murphy 1990

DSM IV and the legal arena

"developed for use in clinical, educational and research settings.. To be employed by individuals with appropriate training and experience in diagnosis. It is important that DSM IV not be applied mechanically by untrained individuals ... guidelines to be informed by clinical judgement and are not to be used in a cookbook fashion". (APA)

In the forensic setting : "there are significant risks that diagnostic information will be misused or misunderstood".

"These dangers arise because of the imperfect fit between the questions of ultimate concern to the law and the information contained in a clinical diagnosis".

"A diagnosis does not carry any necessary implications regarding the causes .. (nor) .. Carries any necessary implication regarding the individual's degree of control over behaviours that may be associated with the disorder"

International Association for the Study of Pain - on chronic pain:

Five axes	I	anatomical region
	II	organ system
	III	temporal characteristics and pattern
	IV	patient's statement of intensity
	V	aetiology

Psychological components can be coded under II (as a mental disorder) or V (can be "psychophysiological" or "psychological")

ICD-10

■ Persistent somatoform pain disorder:

"The predominant complaint is of persistent, severe and distressing pain, which cannot be explained fully by a physiological process or a physical disorder. Pain occurs in association with emotional conflict or psychosocial problems that are sufficient to allow the conclusion that they are the main causative influences. The result is usually a marked increase in support and attention, either personal or medical."

ICD-10

- "The commonest problem is to differentiate this disorder from the histrionic elaboration of organically caused pain. Patients with organic pain for whom a definite physical diagnosis has not yet been reached may easily become frightened or resentful, with resultant attention seeking behaviour."

Pain and depression

- Pain-prone disorder (Blumer & Heilbronn)

1982

"The pain of the mind is worse than the pain of the body"

Publius Syrus 100BC

"A prime expression of a muted depressive state"

Or "Pain the 3rd pathological emotion"

But chicken and egg



Prior Vulnerability?

"those disorders may, particularly, deserve the name of *nervous*, which, on account of an unusual delicacy, or unnatural state of the nerves, are produced by causes, which, in people of sound constitution, would either have no such effects, or, at least, in a much less degree.

Sir Robert Whytt - 1751

The role of psychological factors?

"Reflex sympathetic dystrophy: A common clinical avenue for somatoform expression"

Ochoa and Verdugo 1995

"at present satisfactory data are not available to foretell which individuals are likely to develop CRPS ... they often seem to have led a psychologically unremarkable life before the condition developed".

G D Schott
Pract Neurol (2007) 7: 145-157

Classic Study of Pain responses in Jewish and Italian Americans vs Irish and "old" Americans

"Cultural, ethnic and family background, religious denomination, social class, personality, personal experience and psycho-social circumstances all determine how a person responds to illness or injury"

M. Zborowski 1952
Cultural components in response to pain

An unsettled group of people are seeking an illness, the proportion is not constant, it depends upon the morale of the community, the ups and downs of the business cycle and the level of community naivety in relation to illness behaviour.

Brooker A.S. et al 1995
Back pain claim rates and the business cycle

"To be well is not the same as to feel well – life presents one illness challenge after another and to be well requires some sense of invulnerability".

N Hadler 1997
Fibromyalgia, chronic fatigue and other iatrogenic diagnostic algorithms

“Sick Role”

T Parsons 1951
“The Social System”

“The patterns of behaviour that people adopt when they are ill or injured – or when they believe that they are”

“Illness behaviour”

D. Mechanic 1961
“The concept of illness behaviour”

“The ways in which given symptoms may be differently perceived, evaluated and acted (or not acted) upon by different kinds of persons”

A range from “making light and shrugging off” to responding to the slightest twitches of pain by quickly seeking medical advice”

“One of the prime functions of public health programs is to teach populations to accept and behave in accordance with the definitions made by the medical profession”.

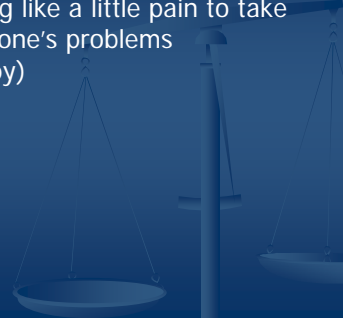
Making an injury work to one's advantage can be a challenge.
Bodies are resilient and a minor injury soon heals.

A Malleon 2002
Whiplash and other useful injuries



In other words?

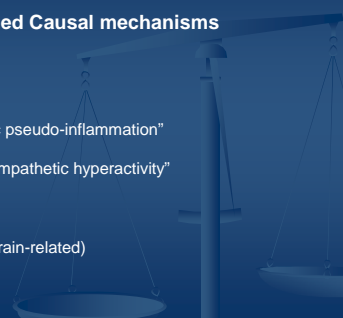
- There is nothing like a little pain to take one's mind off one's problems (Snoopy)



SO

Proposed Causal mechanisms

Local Nerve damage
Inflammation – "neurogenic pseudo-inflammation"
Adrenergic sensitivity – "sympathetic hyperactivity"
Auto immune component
Central mechanisms (i.e. brain-related)

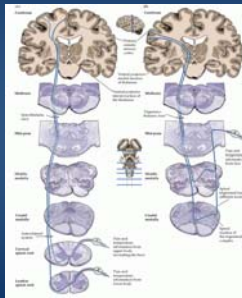


And so to the brain

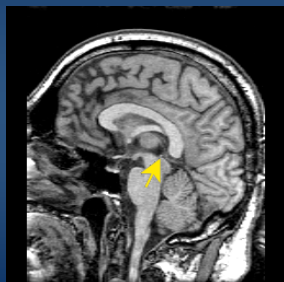
- Imagine the brain, that shiny mound of being, that mouse-gray parliament of cells, that dream factory, that petit tyrant inside a ball of bone, that huddle of neurons calling all the plays, that little everywhere, that fickle pleasure dome, that wrinkled wardrobe of selves stuffed into the skull like too many clothes into a gym bag. D Ackerman 2004

The Alchemy of the mind

Classic Neurology – The Pain pathway



The way in to the brain



Moving right along



Home and dry?



The wild card



Brain related?

The distribution of chronic pain and related symptoms is usually unrelated to basic neuroanatomy (peripheral or central)

Freud: "Hysteria behaves as though anatomy did not exist or as though it had no knowledge of it"

But also "Anatomy is destiny"

So if not **structure**, what about **function**?

Functional brain imaging studies : the brain in action:

SPECT, PET, MEG, Functional MRI

Some recent Functional Brain Imaging studies

SPECT: gradually evolving metabolic changes in thalamus hyperperfusion then hypoperfusion (Fukimoto 1999)

MEG: gradual alteration in cortical representation of affected part (?cortical reorganisation) (Maihofner 2004)

Functional MR: Pre-frontal cortex can "activate" pain without peripheral input (Jackson 2005)
Pre-frontal activation occurs on anticipation of pain when looking at pictures or modelling a partner's pain.
This is redirected and reduced by focusing on something else (Singer 2004)

PET: immobilisation results in increased bloodflow in cingulate and somatosensory areas (Butler 2001).

Junk Science:

- "Lawyers are junkies for junk science"
- "when they learn of these legal frolics, most members of the mainstream scientific community are astounded, incredulous and exasperated in about equal measure".

P Huber 1991
Galileo's revenge: junk science in the courtroom

Higher Pain (and Placebo) responses

Importance of:

Brain Stem – Periaqueductal Grey Matter – Pain (not activated in placebo response)

Thalamus – principal sensory relay station

Somatosensory cortex – Localisation

But also:

Ventro-tegmental area and Nucleus Accumbens -
Reward and motivation

Anterior cingulate cortex – The attentional area (endogenous opioids)

Orbito-frontal cortex – expectations and goals
- recognises mismatches

A Neuropsychiatric Conclusion

“The brain is a creature of habit – it does what it has got used to doing.

It takes a lot of mental effort and motivation voluntarily to do something different”

Psychological Vulnerability to Pain Syndromes

- A presumption with little good scientific evidence.
- However, past history is the best predictor of outcome.
- A pre-existing illness (e.g. depression) is likely to be on-going.
- Pre-existing intentions (e.g. to retire) are likely to be activated.
- Pre-existing work/education patterns are likely to continue.
- Retirement intentions?

Neuropsychiatric history taking

- Previous medical and psychiatric history (from **all** records)
- Nature and duration of pain symptoms.
- Onset and development.
- Treatment responses.
- Relationship to environmental or psychological factors.
- Descriptions of witnesses (independently)
- Inconsistencies in complaint behaviour (e.g. in house, in clinic, in street). 4 of 58 demonstrated in Verdugo & Ochoa 2000 M & N

Patients and Pain

Meaning and message. Dr : "it probably signifies nothing". Pt : "but I could die"

"Pain has but one acquaintance, and that is death" Emily Dickinson
Mysteries disturb the world we take for granted

Every pain is individual, it is the quintessentially solitary experience yet also undeniably social.

Pain, like love, belongs amongst the basic human experiences that make us who we are, yet we have come to forget that.

Pain represents a life of slavery to a passion (fear) and must be resisted (The Stoics)

The search for meaning is vital to survival, we are free to take an attitude to our pain, life questions us in these extremes : V Frankl

Pain is never simply a matter of nerves and neurotransmitters but always requires a personal and cultural encounter with meaning

Doctors and pain

"Some can be just as enthusiastic about illness as are their patients – to whom even small injuries require a great deal of medical attention.

If the pain from a minor injury is to be substantially prolonged, it is indispensable to have a doctor on side".

A. Malleon 2002
Whiplash and other useful injuries

Clinicians are experts in their own "illness" and tend to give the benefit of the doubt to this illness

"The uncomfortable and unwelcome truth is that doctors know far less about pain than most patients" D Morris 1991 *The Culture of Pain*

Defendants and pain

- "But for"
- Eggshell skull
- Balance of probabilities etc
- Is there any hope?



Mismatches

- Mismatch between injury/signs/disability
- Accident : Injury
- Injury: Damage (signs)
- Signs : Symptoms
- Symptoms : Limitations (Disability)
- Disability : Work compromise
- Means either exaggeration or ucs process
- So how do we measure intent?

Intent

- Desire for an outcome
- Beliefs about an action that leads to that outcome
- Intention to perform that action
- Awareness of fulfilling the intention when performing the action

Is it deliberate?

- Is it an intent to deceive? (Judicial not clinical)
- Is it intent to convince? (distress/confusion)
- Is it Unconscious? (evidence? Misunderstanding? Distress? Learned pattern?)

Maybe :

- It would have happened anyway (eg Somatisation Disorder)?
- It will get better (CBT, natural recovery, "it is psychological so it will")?
- It is not true (video men needed?)?
- There is in fact no physical and no psychiatric illness?
- The incapacity cannot be explained structurally?
- Standardised psychiatric criteria are not fulfilled?
- There is no recognised injury?

- Every profession is a conspiracy against the laity
G B Shaw
(The Doctor's Dilemma)
- Lawyers spend a great deal of time shovelling smoke.
Oliver Wendell Holmes Sr 1861
Current and Counter Currents in Medical Science
- If all the lawyers were hanged tomorrow and their bones sold to a mah-jongg factory, we'd be freer and safer and our taxes would be reduced by almost half.
H. L. Mencken



I am perhaps entitled to relate lawyer jokes because there are probably even more jokes about psychiatrists, and, whilst lawyers are customarily portrayed as sharks, psychiatrists are depicted as stumblebums, and I would rather be seen as a shark.

A Malleson 2002
Whiplash and other useful injuries

