

# 病例討論暨實證醫學月會

## ~復健科~

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R2 陳爾駿

99/7/12

# clinical scenario

## 病人基本資料及主訴

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- 蔡黃@枝 84 female 26121175
  - the patient's baseline activity level was partially dependent daily living. However she suffered from falling down injury about 3 months ago. T12 compression fracture was found but and she only received conservative treatment with brace use. Her ambulation ability impaired gradually due to back pain and she just could walk under support with walker use.
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- 
- ❑ This time, she suffered from **acute onset of left limb weakness** around 9/6/13 and 6/19.
  - ❑ She was sent to our ER and admitted in neurologic ward for acute stage treatment.
  - ❑ Brain MRI showed 1) **Subacute infarct** in the right frontal and parieto-occipital lobes with hemorrhagic transformation in the right parietal lobe. 2) Old infarctions
  - ❑ Due to low back pain, left side weakness and dependent ADL, she was transfer to our ward for further rehabilitation program.
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# Past history

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- diabetes mellitus with medication control
  - hypertension with medication control
  - T12 compression fracture about 2-3 months ago
  - bilateral knee total replacement about 10+ years ago
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- 
- Cigarette Smoking : none
  - Alcohol : none
  - Occupation history : none
  - Contact history : none
  - Travel history : none
-

# Physical examination

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- ❑ Consciousness: clear , GCS: E4V5M6
  - ❑ Vital sign: BP: 128/76 mmHg, PR: 70bpm, RR: 14cpm, BT: 37°C
  - ❑ HEENT conjunctiva: not pale sclera: anicteric
  - ❑ Neck: supple, lymphadenopathy(-), jugular vein engorgement(-)
  - ❑ Chest: symmetric expansion, breath with accessory muscle use(-)
  - ❑ Heart sound: regular heart beat, no murmur  
Breath sound: bilateral clear, no wheezing, no crackle
  - ❑ Abdomen: soft and flat, no tenderness, operation scar(-)  
Bowel  
sound: normoactive Percussion: dullness  
Liver/spleen: impalpable Shifting dullness(-)
  - ❑ Extremities: no pitting edema
  - ❑ Skin: op scar over left scalp, rash(-), petechiae(-),  
ecchymosis(-)
-

# Neurologic exam

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## □ JOMAC

- Judgment: good
  - Orientation: To Person: good  
To Place: good  
To Time: good
  - Memory: Remote: good  
Recent: good  
Immediate: good
  - Abstract thinking: fair-good
  - Calculation:  $100-7$  : poor, no obvious change compared to
  - previous status
-

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High cortical function: right handed

Language: Fluency: good

Repetition: good

Comprehension: good

Naming: good

Speech: Dysarthria (-), Aphasia (-)

Swallowing: Dysphagia(-)

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# CRNANIAL NERVES

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I: smell: not test

II: visual acuity: not test

visual fields: not test

III, IV, VI: pupils: 3/3mm. light reflex: (+/+).

EOM: free

nystagmus: nil

diplopia: (-)

ptosis: nil

accommodation: intact

V: masseter: powerful facial sensation: symmetric

VII: left central facial palsy

VIII: hearing: intact

IX, X: uvula position: central.

XI: sternocleidomastoid & trapezius:

XII: tongue deviation(-). tongue atrophy(-). fibrillation(-).

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# MOTOR FUNCTION

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- Br.stage(left side):
  - Upper Limb(proximal): IV
  - Upper Limb(distal): III
  - Lower Limb : III

□ M.P.:	R't	L't
upper proximal	5	3
distal	5	NT
lower proximal	5	NT
distal	5	NT

---

---

DTR

R't

L't

biceps

++

++

triceps

++

++

brachioradialis

++

++

knee

++

++

ankle

++

++

Barbinski's sign: plantar

plantar

Hoffman reflex : -

-

---

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□ MAS

Right (elbow/wrist/finger): 0 /0/0

Right (knee/ankle): 0 /0

Left (elbow/wrist/finger): 0/0/0

Left (knee/ankle): 0/0

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□ Sensory status:

	Right	Left
Light touch	intact	intact
Pin-prick	intact	intact
Joint position	intact	intact

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## □ Autonomic status

Bladder: sensation(+), self voiding(-), sphincter control(-)

Bowel: sensation(-), self voiding(+), sphincter control(+)

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## □ Functional status

- Rolling to L't: fair  
to R't: fair

- Balance                      Static                      Dynamic  
   Sitting                      fair                      poor-fair  
   Standing                      poor                      poor

- Sitting up: poor
  - Standing up: poor
  - Transfer: poor
-

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## □ BARTHEL INDEX

Feeding 5/10	Toilet 0/10
Grooming 0/5	Dressing 0/10
Bowel 10/10	Bathing 0/5
Bladder 0/10	Walking 0/15
Transfer 0/15	Stairs 0/10

■ Total : 15 => total dependence

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# 治療方式

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- 針對中風，安排
    - Rehabilitation program: PT, OT, ST, Psy
    - Medication for Secondary prevention
  - 針對背痛，使用
    - Celebrex 1# bid
    - Ultracet 1# qid
    - Solaxin 1# tid
    - Miacalcic nasal spray 200U qd
    - Hot pack + IFC + Laser
    - Bracing
    - Rehabilitation program
-

## 對治療的反應

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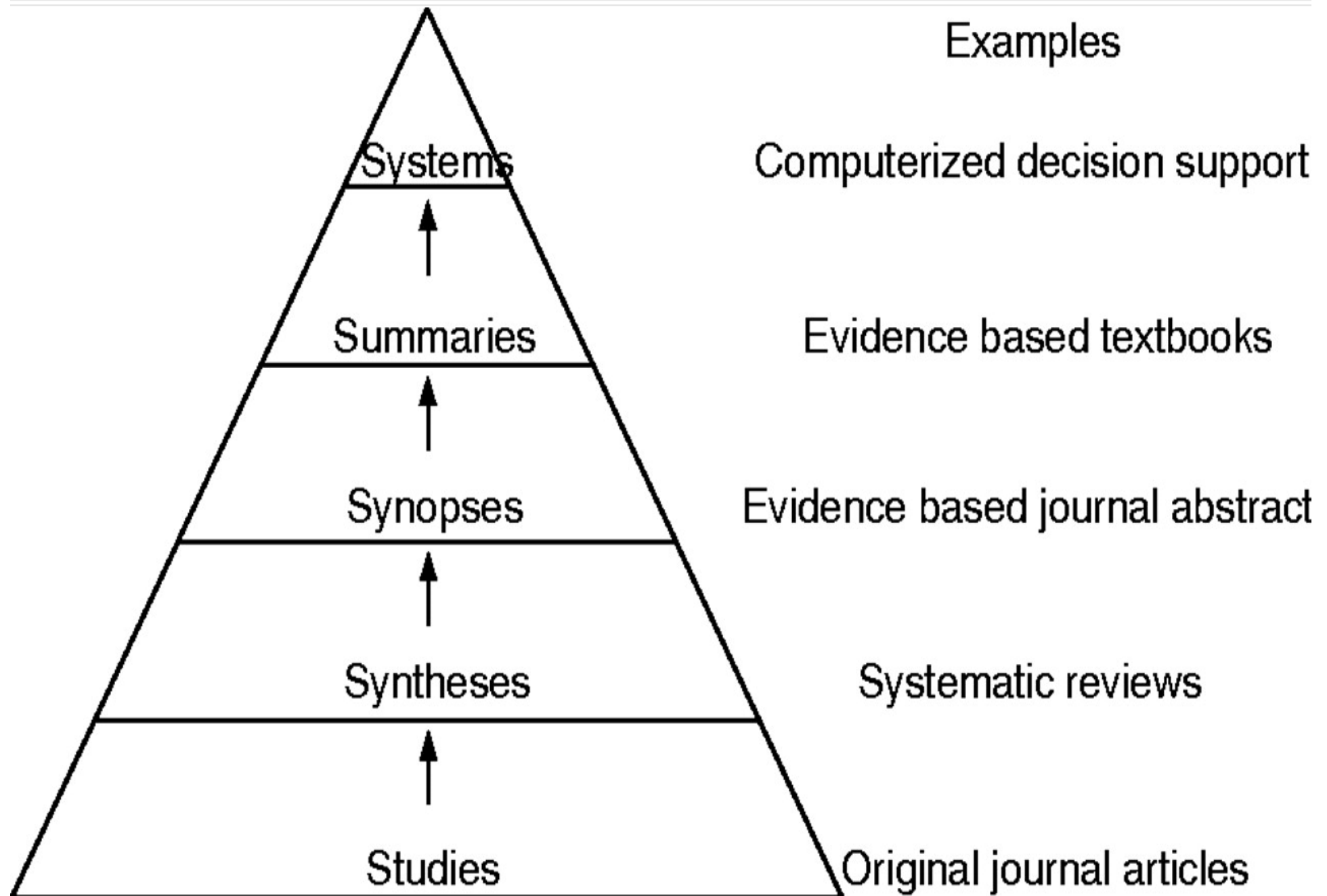
- 病人三個月前診斷為T12 compression fracture, 考量手術風險, 而採用保守治療。因為背痛問題, 造成日常生活失能。
  - 這次中風, 理應積極復健。回復肢體力量, 但是背痛問題使得復健治療有限。
-

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<b>P</b>	Back pain in vertebral compression fracture
<b>I</b>	Conservative treatment
<b>C</b>	Surgical treatment
<b>O</b>	Pain severity reduction, QOL, functional improvement
<b>T</b>	Not defined

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Examples



# 搜尋 Summaries

---

- Key word: vertebral, compression fracture ,treatment, surgery ,conservative
- 資料出處：



# Clinical manifestations and treatment of osteoporotic thoracolumbar vertebral compression fractures

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- Initial management of osteoporotic vertebral compression fractures
    - pain control,
    - resumption of activity as quickly as possible
    - physical therapy
-

# Provide relief from pain

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- Oral analgesics
    - Acetaminophen
    - NSAIDs
    - COX-2 inhibitor: avoided for early pain control
    - Opioids
  - Muscle relaxants
  - Calcitonin
  - Parathyroid hormone
  - Bisphosphonates
-

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## □ Bracing

- limited clinical data evaluating the efficacy of back bracing for improving pain and mobility in patients with osteoporotic compression fractures
  - If used, braces should be discarded when no longer needed, since they promote immobility of the spine and the potential for disuse osteoporosis.
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# Surgery

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- Vertebroplasty and kyphoplasty
-

# Vertebroplasty

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- ❑ In observational studies, vertebroplasty reduced pain in patients with osteoporotic vertebral compression fractures. In unblinded randomized trials comparing vertebroplasty with pain management, there was greater improvement in pain immediately after vertebroplasty (one day) but not at two weeks or three months
  - ❑ we do NOT recommend vertebroplasty for pain reduction in patients with osteoporotic compression fractures.
-

# kyphoplasty

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- ❑ In observational studies, kyphoplasty reduced pain in patients with osteoporotic vertebral compression fractures.
  - ❑ Data from randomized trials are limited. In the largest trial to date, 300 patients with one to three acute vertebral fractures were randomly assigned to balloon kyphoplasty versus non-surgical care. After one month, patients assigned to kyphoplasty had greater improvement in the short-form (SF)-36 physical component summary scale, a validated quality of life measurement.
  - ❑ However, after twelve months, the difference in improvement between the two groups was no longer significant.
-

# Adverse effects of surgery

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- extravasation of the cement
  - rarely cement embolization
  - high rate of new vertebral fractures
-

# Exercise

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- Exercise regimens in elderly patients who have had a vertebral fracture have been shown to decrease the use of analgesics and improve quality of life.
-

# 將summary應用到我的病人

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## □ 針對背痛，使用

- Celebrex 1# bid

- Ultracet 1# qid

- Solaxin 1# tid

- Miacalcic nasal spray 200U qd

⇒ 對於短期止痛及長期治療骨鬆都有適當的效果

⇒ 繼續使用，再根據病人改善狀況做調整

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# 將summary應用到我的病人

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## □ Hot pack + IFC + Laser

⇒ 使用熱敷及電療對組織修復及減低疼痛有效果

## □ Bracing

⇒ 病人已經穿了三個月背架，現今除了背痛之外沒有其他神經學症狀

⇒ 建議不再使用背架，避免trunk muscle(posture muscle)的無力造成背痛更難控制。

## □ Rehabilitation program

⇒ 恢復姿態性肌肉群的力量，使結構穩定，以改善疼痛及功能性狀態。

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# 將summary應用到我的病人

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## □ Surgery intervention

⇒ 病人目前無明顯神經學缺損；並考慮病人手術麻醉風險(eg. 年紀, 急性中風)、術後併發症及長期效果

⇒ 目前不考慮手術治療

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# 搜尋Synopsis

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- Key word: vertebral, compression fracture ,treatment, surgery ,conservative
- 資料出處：Cochrane data base





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[Operative versus non-operative treatment for thoracolumbar burst fractures without neurological deficit](#)

Liao Yi, Bai Jingping, Jin Gele, Taixiang Wu, XiLin Baoleri

January 2009

**Review**

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Operative versus non-operative treatment for thoracolumbar burst fractures without neurological deficit

# 搜尋Synopsis

---

- Key word: compression fracture
- 資料出處：Cochrane data base





# 搜尋Synopsis

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- Key word: compression fracture
- 資料出處：ACP Journal Club






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4. 2005 - [Review: Strong evidence supports perioperative practices to reduce complications from hip fracture](#)
5. 2009 - [Review: Evidence for the effectiveness of nonsurgical interventions for low back pain and radiculopathy is limited](#)
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8. 2007 - [Review: Flight times greater than 8 hours and the presence](#)

## Vertebroplasty was not effective for painful osteoporotic vertebral fractures

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- In patients with painful osteoporotic vertebral fractures, vertebroplasty did not reduce pain or improve disability or quality of life more than a control intervention.

Outcomes	Vertebroplasty	Control procedure	Treatment effect (95% CI) at 1 mo†
Mean pain score	3.9	4.6	0.7 (-0.3 to 1.7)
Mean disability score	12	13	0.7 (-1.3 to 2.8)

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# Evidence for the effectiveness of nonsurgical interventions for low back pain and radiculopathy is limited

Intervention	Selected findings†
Local injection	<i>Subacute/chronic pain:</i> Local anesthetic was better than placebo at 2 wk in 3 RCTs (2 lower quality) but did not differ from dry needlestick or acupuncture in 1 RCT.
Prolotherapy	<i>Chronic nonspecific pain:</i> Prolotherapy and saline or local anesthetic did not differ for pain and disability at ≤ 24 mo in 3 (1 lower quality) of 4 RCTs.
Epidural steroid injection	<i>Pain with radiculopathy:</i> Epidural steroid was better than nonepidural placebo in 5 of 6 RCTs (2 of 3 lower quality) and epidural placebo in 2 of 11 RCTs (1 of 7 lower quality) for pain/function at ≤ 1 mo; epidural steroid was no better than placebo at > 3 mo in 11 of 17 RCTs (5 of 8 lower quality).
Chemoneurolysis	<i>Lumbar disc prolapse:</i> Chemoneurolysis was better than placebo for treatment success in 4 (1 lower quality) of 5 RCTs.
FJSI or medial branch block	<i>Chronic pain:</i> FJSI was better than saline at 6 mo but not earlier in 1 RCT; treatments did not differ in 1 lower-quality RCT. FJSI and medial branch block did not differ in 2 RCTs (1 lower quality).

# 搜尋Synopsis

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- Key word: compression fracture
- 資料出處：BMJ

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- Key word: Low back pain
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### Therapeutics

**Multicentre randomised controlled trial: Cognitive behavioural therapy shown to be an effective and low cost treatment for subacute and chronic low-back pain, improving pain and disability scores in a pragmatic RCT**

Jonathan C Hill, Nadine E Foster, Elaine M Hay

*Evid Based Med* ebmed1085 Published Online First: 8 June 2010

doi:10.1136/ebm1085

...treatment for subacute and chronic low-back pain, improving pain and disability...cognitive behavioural treatment for low-back pain in primary care: a randomised controlled...recommendations for the management of low back pain.4 Here we look at the BEST trial...

[\[Extract\]](#) [\[Full text\]](#) [\[PDF\]](#)

### Diagnosis

**Prospective cohort study: Serious pathology in people presenting to primary care with acute low back pain is rare (0.9%), but high false-positive rates for some 'red flags' may limit their diagnostic value**

Robert F McLain

*Evid Based Med* 2010;15:61-62 doi:10.1136/ebm1040

...presenting to primary care with acute low back pain is rare (0.9%), but high false...primary care settings with acute low back pain. *Arthritis Rheum* 2009; 60:3072-80. these patients

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# 搜尋 Synthesis

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-

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vertebral, compression fracture ,treatment, surgery ,conservative

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J Trauma. 2010 Mar;68(3):736-44. Review.

PMID: 20220428 [PubMed - indexed for MEDLINE]

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2. Arvin B, Fournier-Gosselin MP, Fehlings MG.

Neurosurgery. 2010 Mar;66(3 Suppl):22-31. Review.

PMID: 20173524 [PubMed - indexed for MEDLINE]

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[Vertebral compression fracture in the middle of fused segments without a history of injury: a case report.](#)

3. Ha KY, Kwon SE, Kim KW, Oh IS, Lee YM.

Spine (Phila Pa 1976). 2010 Feb 15;35(4):E137-9. Review.

PMID: 20081563 [PubMed - indexed for MEDLINE]

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[The major complications of transpedicular vertebroplasty.](#)

4. Cosar M, Sasani M, Oktenoglu T, Kaner T, Ercelen O, Kose KC, Ozer AF.

J Neurosurg Spine. 2009 Nov;11(5):607-13. Review.

PMID: 19929366 [PubMed - indexed for MEDLINE]

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[Role of cementoplasty in the management of compression vertebral body fractures.](#)

Am J Orthop (Belle Mead NJ). 2005 Sep;34(9):425-9.

## Is kyphoplasty the standard of care for compression fractures in the spine, especially in the elderly?

Neviaser A, Toro-Arbelaez J  
Hospital for Special Surgery, N

### Abstract

Vertebral fractures, particularly in the elderly, are often treated with conservative care, including bed rest and analgesics. In a recent study, 4 out of 10 patients with vertebral fractures treated with kyphoplasty had a visual analog scale score of 4 or less at 4 weeks (4 out of 10 on the visual analog scale).

Patients with kyphotic deformity can obtain pain relief from vertebroplasty that is comparable to pain relief from kyphoplasty. For patients with a greater degree of kyphosis, only kyphoplasty can offer the predictable restoration of height and realignment of the spine. Currently we treat all Colles' fractures, all hip fractures, and all tibia plateau fractures. The time has come to treat all symptomatic vertebral fractures.

PMID: 16250483 [PubMed - indexed for MEDLINE]

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Vertebral fractures, particularly if they are nonsymptomatic, are old, and have not produced kyphotic deformity, should be treated with conservative care



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## Nonoperative management of osteoporotic vertebral compression fractures

Heidi Pratt

<sup>1</sup> Section, Phys  
School of Me

<sup>2</sup> Mallinckrodt

Conservative management is multifaceted and comprehensive. If pain remains intractable, vertebral augmentation maybe a good treatment option

### KEYWORDS:

Vertebral compression fracture, conservative pain control, vertebroplasty, kyphoplasty, rehabilitation, vertebral augmentation.

**Summary**<sup>1</sup> As the population ages, vertebral compression fractures are an increasing source of pain and dysfunction. The immobilisation that often occurs with fractures can lead to multiple medical complications and their management can be complex as care may require multiple treatment modalities. Each individual responds to pain differently and a treatment plan must be tailored to the individual's pain, functional limitations and goals. The likely first choice for managing stable osteoporotic vertebral compression fractures is conservative management. Treatment options usually involve a combination of medications, bracing and physical therapy. If radicular pain is a component of the pain syndrome, epidural steroid injections may be beneficial. In addition, some patients may benefit from vertebral augmentation. This paper reviews current recommendations for managing vertebral compression fractures. Treatment options including vertebral augmentation are reviewed, including indications and complications.

## Acute versus chronic vertebral compression fractures treated with kyphoplasty: early results

Dennis Crandall, MD\*, Douglas Slaughter, MD, P.J. Hankins, RN,  
Claire Moore, PA-C, Jonathan Jerman, BS

*Sonoran Spine Center, 2610 North 3rd Street, Suite B, Phoenix, AZ 85004, USA*

Received 4 June 2003; accepted 8 January 2004

### Abstract

Fracture reduction was best achieved in acute fractures. Symptomatic chronic fractures may also remain candidates

in patients with either acute or chronic VCFs.

**STUDY DESIGN:** A prospective, consecutive cohort study of patients who underwent kyphoplasty between March 2000 and December 2001 to treat osteoporotic VCFs that were either less than 10 weeks old (acute) or more than 4 months old (chronic). Fifteen subacute fractures (treated 10 to 16 weeks after fracture) were excluded from analyses.

**PATIENT SAMPLE:** Eighty-six VCFs in 47 patients (35 female and 12 male) were treated during 55 kyphoplasty procedures. Mean patient age was 74 years (range, 47 to 91).

**METHODS:** Clinical outcomes were determined by comparison of preoperative and postoperative data from patient-reported indexes (pain assessment, pain medication usage and Oswestry Disability Index for Back Pain). Radiographs were assessed as to percent vertebral collapse, vertebral height restoration and local kyphosis correction.

**RESULTS:** By 2 weeks after surgery, 90% of acute and 87% of chronic fractures were associated

# Appraisal

Level	與[治療/預防/病因/危害]有關的文獻
1a	用多篇RCT所做成的綜合性分析(SR of RCTs)
1b	單篇RCT(有較窄的信賴區間)
1c	All or none
2a	用多篇世代研究所做成的綜合性分析
2b	單篇cohort及低品質的RCT
2c	Outcome research / ecological studies
3a	SR of case-control studies
3b	Individual case-control studies
4	Case-series (poor quality :cohort / case-control studies)
5	沒有經過完整評讀醫學文獻的專家意見

# Grades of Recommendation

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<b>A</b>	Consistent level 1 studies
<b>B</b>	Consistent level 2 or 3 studies <i>or</i> extrapolations from level 1 studies
<b>C</b>	Level 4 studies <i>or</i> extrapolations from level 2 or 3 studies
<b>D</b>	Level 5 evidence <i>or</i> troublingly inconsistent or inconclusive studies of any level

# Apply

醫療現況	病人意願
<p>手術治療與保守治療都普遍處理脊椎粉碎性骨折，當病人得到手術的建議時，常會尋求其他意見。在現有研究證據下，根據病人不同情況，綜合考量應該是比較適當。</p>	<p>家屬希望病人疼痛能夠控制，減少病人痛苦，也才能進行中風的復健治療。病人希望可以減少疼痛的痛苦。</p>
生活品質	社會脈絡
<p>使用治療方式，能最有效改善疼痛，進而日常功能，才能把握復健黃金期，改善生活品質。</p>	<p>病人症狀的明顯改善為健保評估醫療品質的指標。病人的日常功能性愈好，所耗費家庭及社會資源愈少。</p>



Thank you!