



# Geriatrische bekkenfracturen

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# Disclosure belangenverstrengeling voor de sprekers van de AZO scholingsavond

(Potentiële) belangenverstrengeling	Geen
Voor bijeenkomst mogelijk relevante relaties met bedrijven	Geen
Sponsoring of onderzoeksgeld Honorarium of andere (financiële) vergoedingen Aandeelhouder	Geen Geen A.B. van Vugt chirurgie BV
Andere relatie	Bevriend met Prof Dr. M.E.



25/04/2014 10:16

# Introductie

- Literatuur
- Klinische presentatie
- Lichamelijk onderzoek
- X-conventioneel
- CT-scan
- Fractuurclassificatie
- Behandelings-strategie



# Literatuur

Rommens P.M., Hofmann A.,

Comprehensive classification of fragility fractures of the pelvic ring:  
Recommendations for surgical treatment

Injury, Int. J. Care Injured 44 (2013) 1733–1744

Due to the increasing life expectancy, orthopaedic surgeons are more and more often confronted with fragility fractures of the pelvis (**FFPs**). These kinds of fractures are the result of a **low-energy impact** or they may even occur **spontaneously** in patients with severe osteoporosis. Due to some distinct differences, the established classifications for pelvic ring lesions in younger adults do not fully reflect the clinical and morphological criteria of FFPs.

# Literatuur

**Most FFPs are minimally displaced and do not require surgical therapy.**

**However, in some patients**, an insidious progress of bone damage leads to increasing displacement, nonunion and persisting instability. Therefore, new **concepts for surgical treatment** have to be developed to address the functional needs of the elderly patients.

Based on an analysis of **245 consecutive patients** with FFPs, we propose a novel classification system for this condition. This classification is based on morphological criteria and it corresponds with the degree of instability. Also in the elderly, these criteria are the most important for the decision on the type of treatment as well as type and extent of surgery.



# Literatuur

The **estimation of the degree of instability** is based on radiological and clinical findings. The **classification** gives also hints for **treatment strategies**, which may vary between minimally invasive techniques and complex surgical reconstructions.



# Klinische presentatie

- Low energy trauma
- Spontaan?
- Verdenking collumfractuur?
- Pijn
- Onvermogen te bewegen/belasten

Many patients present with spontaneous pain in the groin or with lower back pain.





# Lichamelijk onderzoek

- Pijnpunten
- Bewegelijkheid heup
- Pijn bij bewegen heup
- Geen gericht onderzoek!
- Achterzijde bekkenring?

When manual pressure is applied simultaneously on both iliac crests, patients report severe pain in both the dorsal and the ventral half of the pelvic ring.

# X-conventioneel

- AP bekken
- (evt. X heup)

## Diagnose:

- Os pubisfractuur ***stabiel “leg maar op een bedje”***

Radiological examinations are conducted to confirm suspected fractures. The three conventional views (pelvic antero-posterior (a.p.), inlet and outlet views) are the first step of the diagnostic work-up to detect pubic and ischial rami fractures, symphysis pubis disruptions and rotational and vertical displacements. Special attention should be given to the sacral ala, as most lesions of the dorsal pelvis are located there.

# CT-scan

- Het bekken is een ring, een ring breekt nooit op 1 plek
- Er moet achter dus ook iets zijn
- CT geeft goede informatie achterzijde

Because dorsal pelvis visualisation is limited with conventional views, **we always perform CT imaging for all these patients**. Coronal reconstructions may be more informative than reconstructions in the transverse or sagittal plane. In a few cases, the origin of pelvic pain remains unclear after conventional X-rays and CT examinations. In these cases, MRI of the pelvis is recommended to exclude other reasons. A bone bruise in the sacral ala is sometimes detected. We believe that such bone bruises correspond to the onset of a disruption of the cancellous structure of the lateral sacrum, and the lesion is the first stage before a fragility fracture occurs

# CT-scan

This classification is based on the degree of **instability**. Also in the elderly, this criterion is the most important for the decision on the type of treatment as well as type and extent of surgery. The estimation of the degree of instability is derived from **radiological** and **clinical** findings.

We distinguish slight, moderate, high and highest instability as major categories. Within each FFP type, we distinguish several subcategories.

The discrimination is given by the

- **localisation of the injuries**
- **presence of fracture displacement**

These characteristics can be found on conventional **X-rays**, **CT** views and/or **MRI** images.



**A**

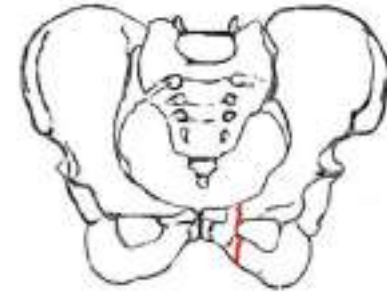
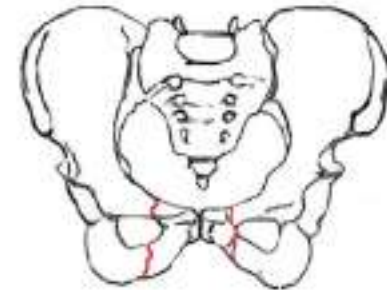
# Fractuur classificatie FFP:

## Stabiele fracturen:

Type Ia            unilateral anterior disruption

Type Ib            bilateral anterior disruption

In many cases, the CT scan uncovers non-displaced fracture lines or a crush zone in the posterior pelvic ring despite negative findings in conventional X-rays. Therefore, for a precise classification of these injuries a CT scan is required. (incidence 3,2%-41%)

**FFP Ia****FFP Ib**

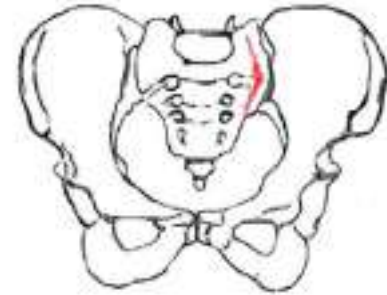
**B**

# Fractuur classificatie FFP:

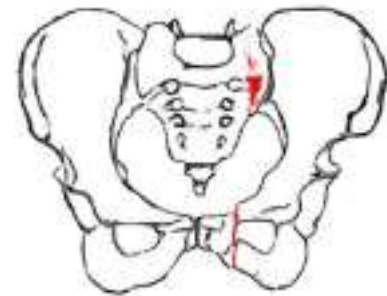
## Potentieel instabiele fracturen:

- Type IIa non-displaced and isolated unilateral sacral fracture
- Type IIb pubic rami fractures with a crush zone of the sacral ala without displacement
- Type IIc pubic rami fractures with a non-displaced sacral ala fracture.

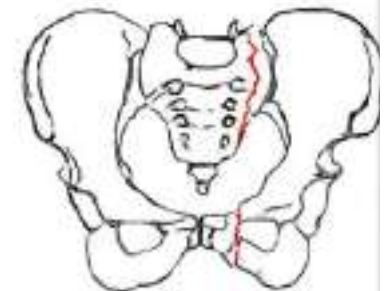
FFP IIa



FFP IIb



FFP IIc



# Fractuur classificatie FFP:

## Instabiele fracturen:

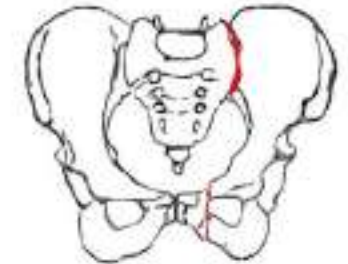
- Type IIIa complete unilateral iliac disruption with a complete anterior disruption
- Type IIIb iliosacral disruption with a complete anterior disruption
- Type IIIc complete unilateral sacral disruption with a complete anterior disruption.

C

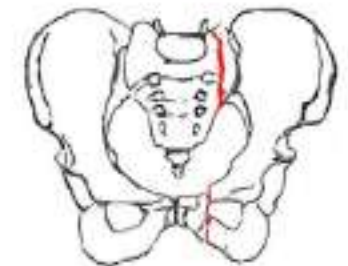
FFP IIIa



FFP IIIb



FFP IIIc



D

# Fractuur classificatie FFP:

## Complex instabiele fracturen:

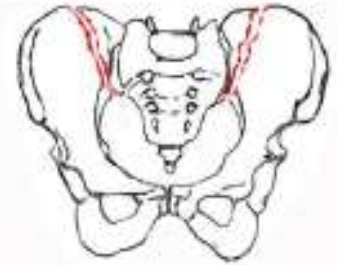
one specific characteristic: the complete dissociation between the iliolumbar spine and the pelvic ring. There always is a **bilateral** and complete **dorsal** disruption.

Type IVa      bilateral iliac fracture,

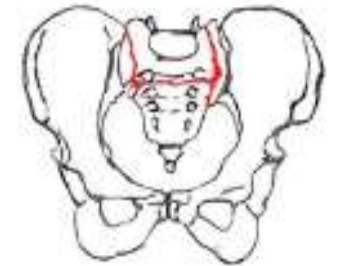
Type IVb      bilateral and complete sacral ala fracture. The sacral bodies, together with the bony structures around the neuroforamina are separated from the sacral ala

Type IVc      combination of different instabilities in the dorsal pelvis

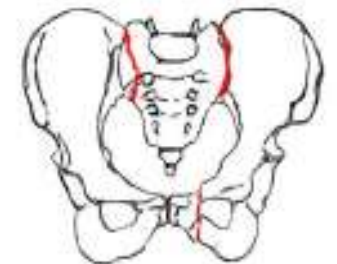
FFP IVa



FFP IVb



FFP IVc





# Behandelingsstrategie

## Type I:

Nondisplaced fractures were usually treated **conservatively**. However, when patients could not be mobilised out of bed during the **first 3–5 days** despite pain therapy or if increasing dislocation of fracture fragments during the early follow-up period was noticed, operative treatment was performed whenever it was possible!

## Type II:

Revalidation time with conservative treatment will be longer and more problematic than in FFP Type I lesions. With early mobilisation, there is a risk of increasing instability or nonunion. Therefore, surgical fixation should be considered. The **surgery** can be performed in a **minimally invasive way**

# Behandelingsstrategie

**Type I:** conservatief



Dag 2 ontslag VP  
Na 6 weken retour pijn++  
X: toename dislocatie  
Geen CT  
Geen verdere actie  
Overleden na 9 weken!

# Behandelingsstrategie

**Type II:** minimal invasive surgery (A + P)



# Behandelingsstrategie

**Type II:** minimal invasive surgery (A + P)



Dag 1 percutane schroef fixatie  
Dag 2 belaste mobilisatie  
Dag 5 ontslag naar huis!

Na 12 weken klachten vrij

# Behandelingsstrategie

## **Type III:**

Anterior fixation must always be combined with posterior fixation, and vice versa. An open surgical procedure can be needed.

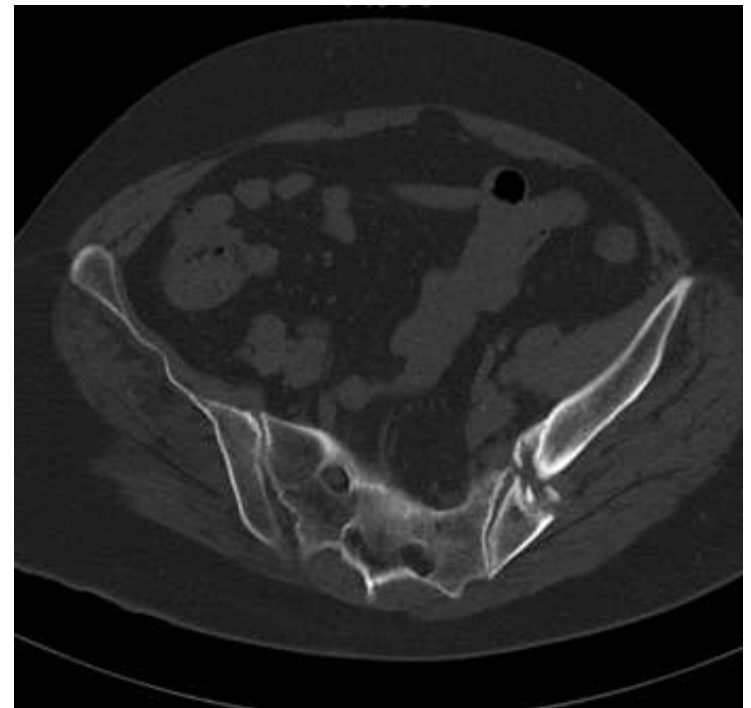
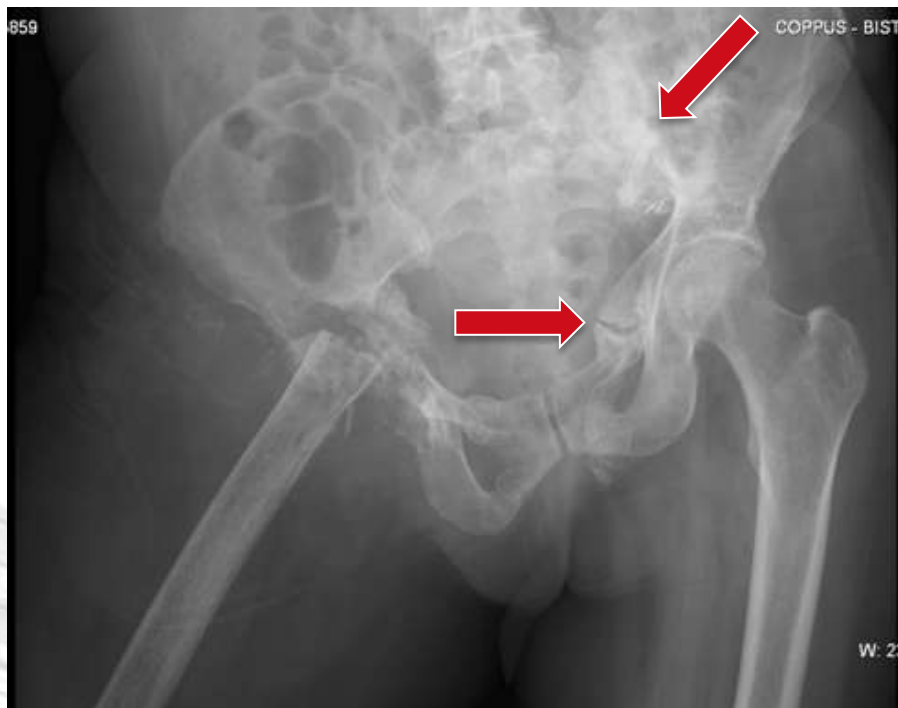
## **Type IV:**

Open surgical procedure are needed in most cases (angle stable plate fixation, bone-graft, augmentation)



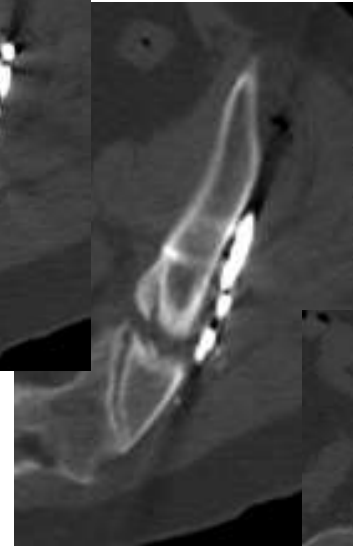
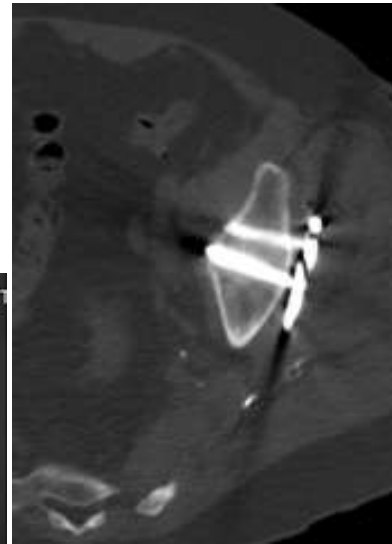
# Behandelingsstrategie

Type III-IV: Open chirurgie



# Behandelingsstrategie

Type III-IV: Open chirurgie

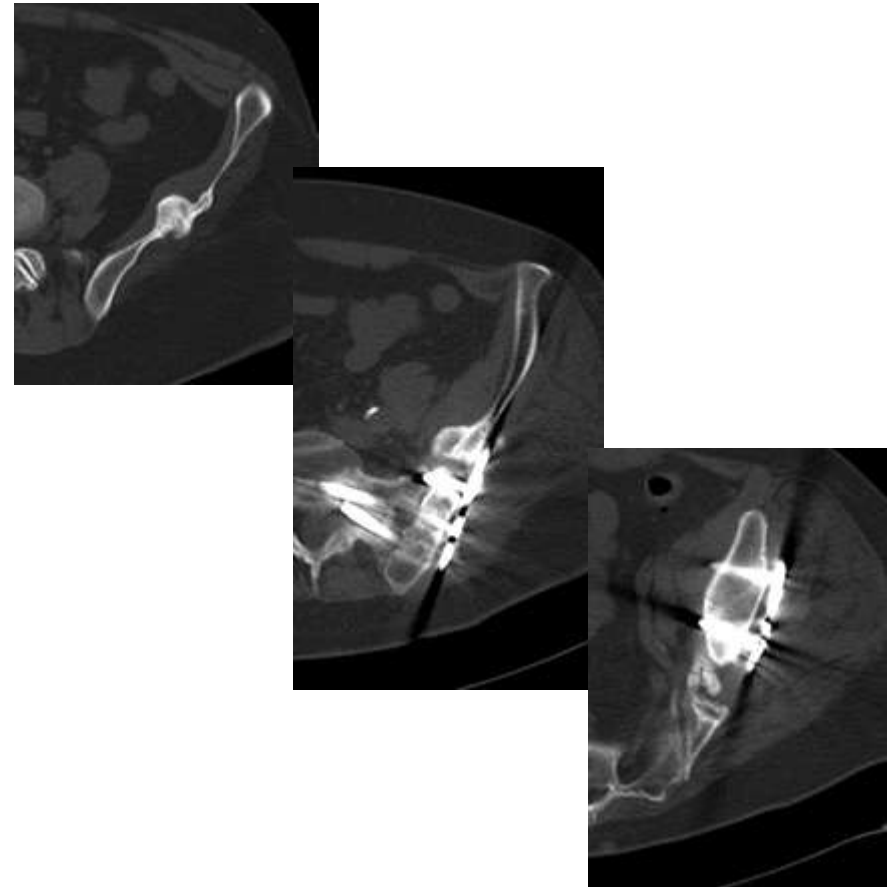


# Behandelingsstrategie

Linker been belastbaar  
Sterke pijnreductie

Na 6 maanden union

Type III-IV: Open chirurgie





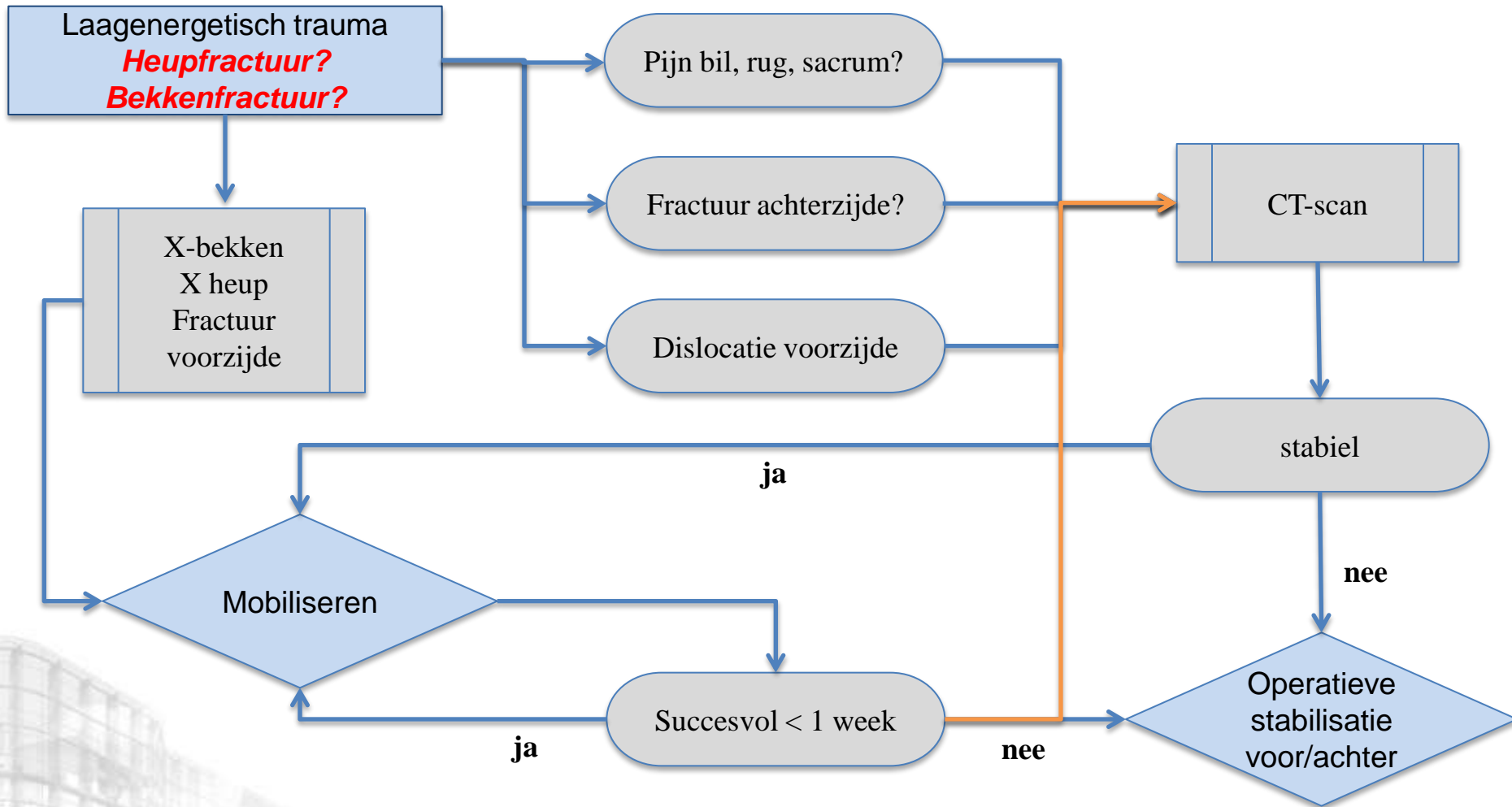
# Conclusie

- Doel is optimale behandeling te geven qua pijnbestrijding en patient weer snel te reactiveren: **bewegen is overleven!**
- **Dan moet je wel weten wat er met het bekken aan de hand is!**
- Dat kan alleen met een **CT-scan**
- Dus **standaard** een CT in de work-up maken?

**Os pubis fractuur bij de oudere patient:  
“Entry through the gantry”**



# Beslisboom



# Samenvatting

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