

Pigmented Villonodular Synovitis



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Pigmented Villonodular Synovitis

First described by Chassaignac in 1852

Uncommon Disease

Idiopathic Proliferation of the Synovium

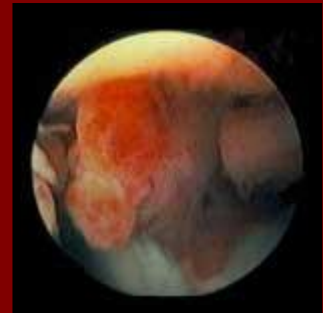
Benign, Locally Invasive

**May damage soft tissue and bone around a
joint leading to functional deterioration**

Classification

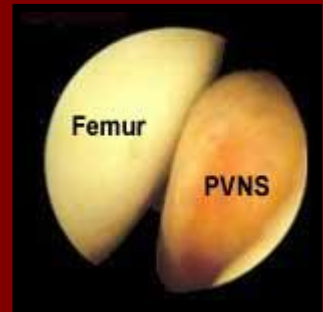
Diffuse

Entire Synovium affected



Localised

Single Discrete Mass



Both forms can be intra and extra-articular

Any synovial joint can be affected

Large Joints most Common

Knee, Hip, Shoulder (Shwartz 1989)

Typically mono-articular rarely polyarticular

Often affects flexor tendon sheaths of the hand

“Giant Cell Tumour”

Demographics

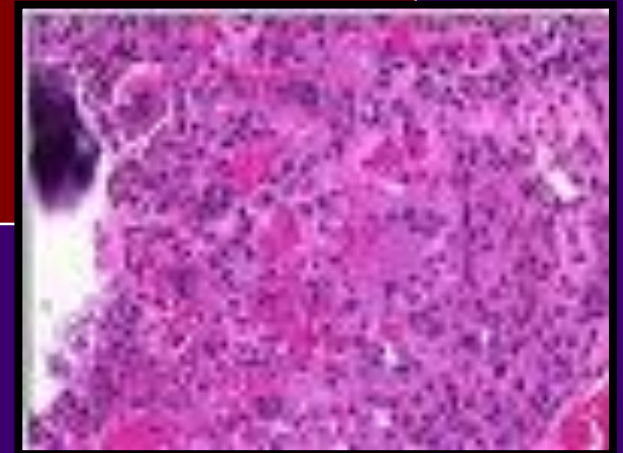
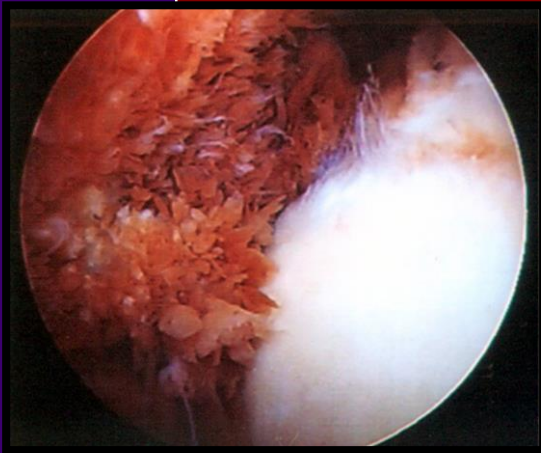
Both Sexes affected equally

Adults in 30s and 40s (any age)

Paediatric cases linked to congenital defects

Histology

**Villous,
Nodular,
Villo-nodular,
Giant Cells,
Haemosiderin.**



Clinical Presentation

Depends on Location and Extent

Onset often insidious

Clinical Presentation

DIFFUSE

Mild Pain

Decreased ROM

Swelling

Aspiration

(Haemarthrosis

Flandry et al 1994)

Clinical Presentation

LOCALISED

Swelling

Mechanical Symptoms

Locking

Giving way



Radiology

Xray

– **Non-specific Findings**

US

- **Thickened synovium, effusion,
heterogenous echogenic mass**

CT

- **Increased iron of synovium appears high
density soft tissue mass**

MRI

– **Investigation of Choice**



Radiology

MRI – Helps with the Diagnosis

Hyperplastic Synovium

Heterogenous

Haemosiderin, Fibrosis (Low Signal)

Fat and Inflammation (High Signal)

Radiology

MRI - Extent

?Lateral Popliteus Recess

?Medial Gastrocnemius-SemiM Bursa

?Posterior

- Plan Treatment eg type of surgery

?Arthroscopic ?Open ?Combination

- Assess Recurrence

Treatment

LOCALISED PVNS

**In both Intra and Extra- Articular Locations
do well with simple excision**

Open or Arthroscopic depending on Location

Excellent results

(Moskovich et al 1991, De Ponti 2003,)

Treatment

DIFFUSE PVNS

Difficult to Treat

Various Techniques

Poor Results

High Complication Rate



Treatment

DIFFUSE PVNS

Arthroscopic Synovectomy

- **6-portal technique to access the anterior and posterior synovium with a posterior incision to remove disease within a “Baker’s Cyst” if required**

Open Total Synovectomy

- **anterior and then posterior excision of the synovium either as a single or two-stage procedure three months apart**

Treatment

DIFFUSE PVNS

Arthroscopic Synovectomy is preferred to
Open Total Synovectomy similar results,

but Less complications
(stiffness, RSD, DVT)
Quicker Recovery
(Chin et al 2002,
Bisbinas / Sivardeen 2008)



Treatment

DIFFUSE PVNS

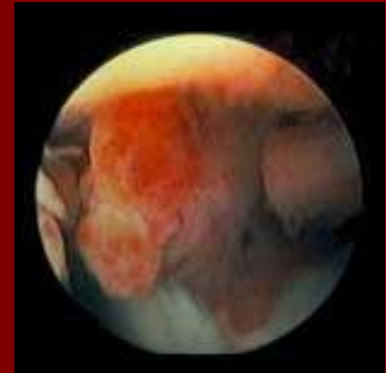
Arthroscopic Synovectomy –

Very Lengthy and Technically Demanding

**All areas of the knee need to be viewed,
assessed and treated sequentially**

Multiple portals but must avoid neurovascular compromise

**Often impossible to remove 100%, but aim for maximal debulking, to
minimise recurrence while leaving the patient with a functional knee**



Treatment

DIFFUSE PVNS

High recurrence rates

Mean time 5 years (Shwartz et al)

85% Recurrence at 3.5 years

although only 25% symptomatic

(Bisbinas / Sivardeen 2008)

Treatment

DIFFUSE PVNS

RISK FACTORS FOR RECURRENCE

Positive Surgical Margins

Cellularity,

Chromosomal abnormalities

History of Previous operations

(Aden et al 2002)

Treatment

DIFFUSE PVNS

RADIOTHERAPY

Adjunct to Partial / Total Synovectomy and for Recurrences

With Good Results reported:

- Blanco et al (2001)

2 weeks after surgery – 86% satisfactory at 33months, 18% Recurrence

- Shabat et al (2002)

Surgery and intra-articular injection of yttrium 90 (radiocolloid)-6-8 weeks after surgery – Excellent functional results at mean 6 years without recurrence or complications in 90%

Treatment

DIFFUSE PVNS

RADIOTHERAPY

But Not All Good Results (Chin 2002)

Fibrosis

Swelling

Wound Problems

Malignant Transformation

(Layfield et al 2000)

Treatment

DIFFUSE PVNS

TOTAL KNEE ARTHROPLASTY

In severe cases

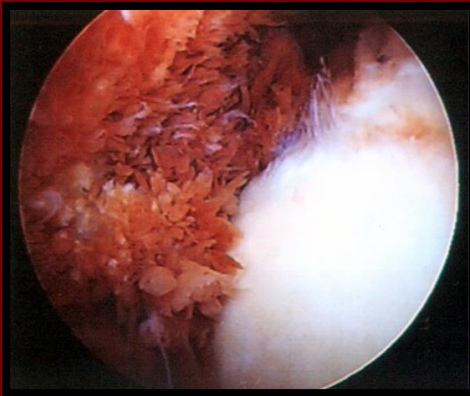
However recurrence is still possible

(Hamlin 1998)

Treat with partial synovectomy

Radiotherapy

(if components are stable)



TAKE HOME MESSAGES

PVNS is a Difficult condition to treat and should not be underestimated

Important to let the patient know about prognosis in diffuse cases

TAKE HOME MESSAGES

MRI IS USEFUL

- Investigate symptomatic patients
- Evaluate posterior disease prior to surgery

ROUTINE MRI in asymptomatic patients may lead to

- over diagnosis and ?“unnecessary”
intervention

TAKE HOME MESSAGES

PRIMARY DIFFUSE CASES

If INTRA-ARTICULAR

**Should Ideally be treated with
Total Arthroscopic Synovectomy**

If EXTRA-ARTICULAR

Open Synovectomy

TAKE HOME MESSAGES

PRIMARY LOCALISED CASES

Treat with Excision

**INCOMPLETE EXCISION IS
LINKED TO RECURRENCE**

TAKE HOME MESSAGES

**FOR RECURRENCES
FURTHER SYNOVECTOMY
?POST-OP RADIOTHERAPY**

**ADVANCED CASES TREAT
WITH TKR**