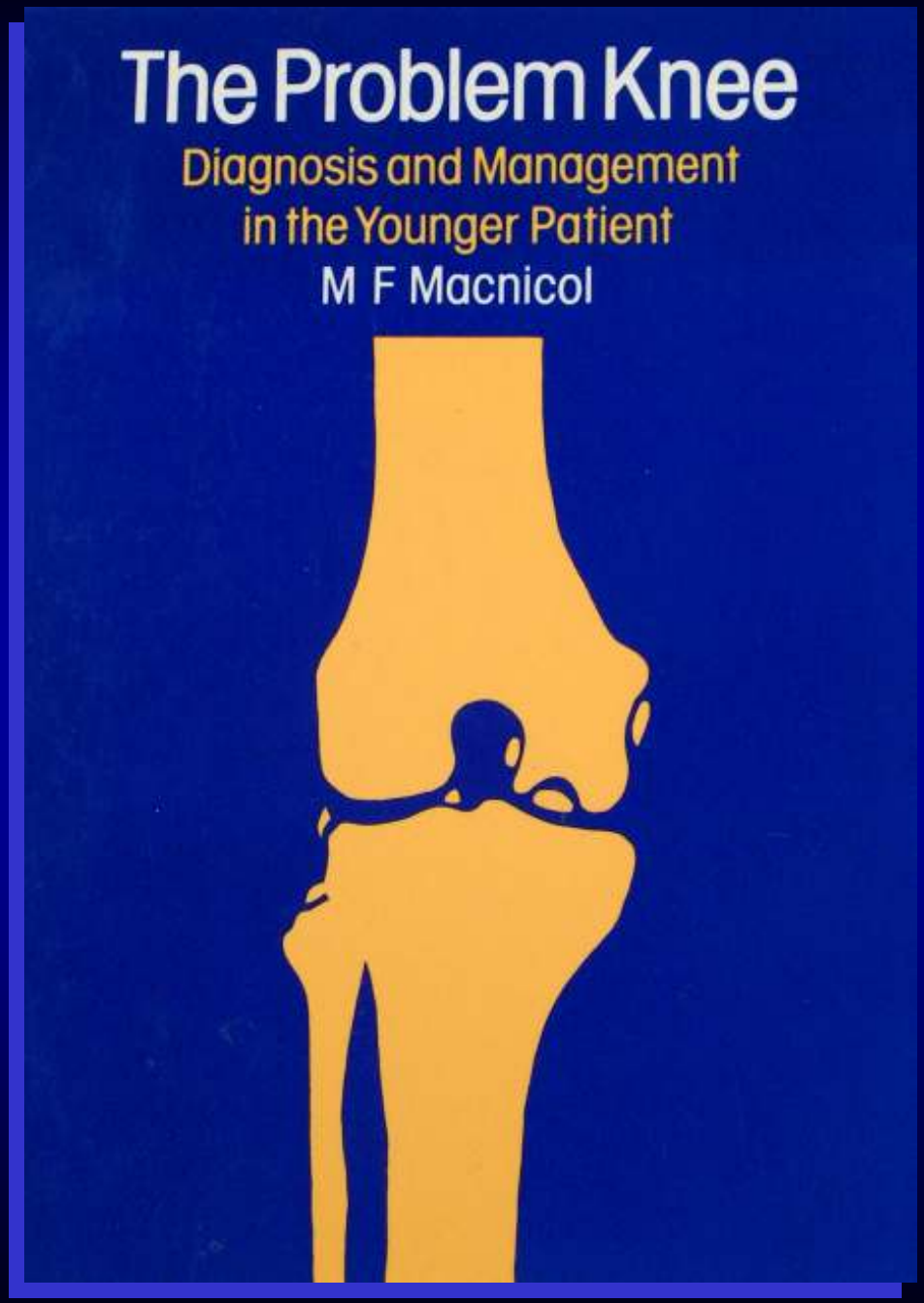

The Problem Knee
Diagnosis and Management
in the Younger Patient
M F Macnicol

MENISCAL PATHOLOGY IN CHILDREN

- Discoid anomaly
- Tear
- Cyst
- Impingement
- Subluxation


post
lat
med
ant
4 3 2 1 0 1 2 3
CM.


3 2 1 0 1 2 3
CM.

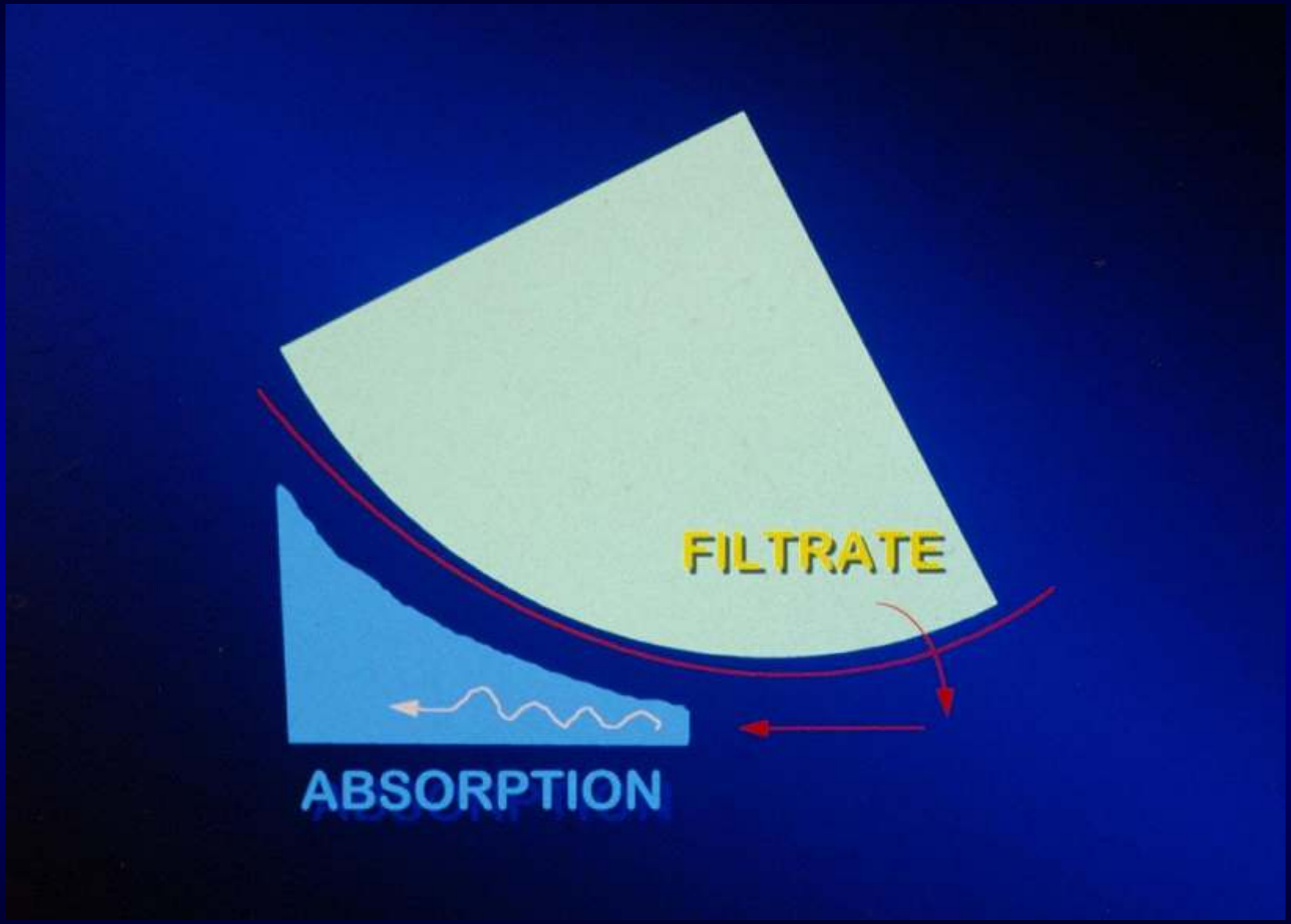
MENISCAL FUNCTION

HOOP RESTRAINT

(TENSION BAND)

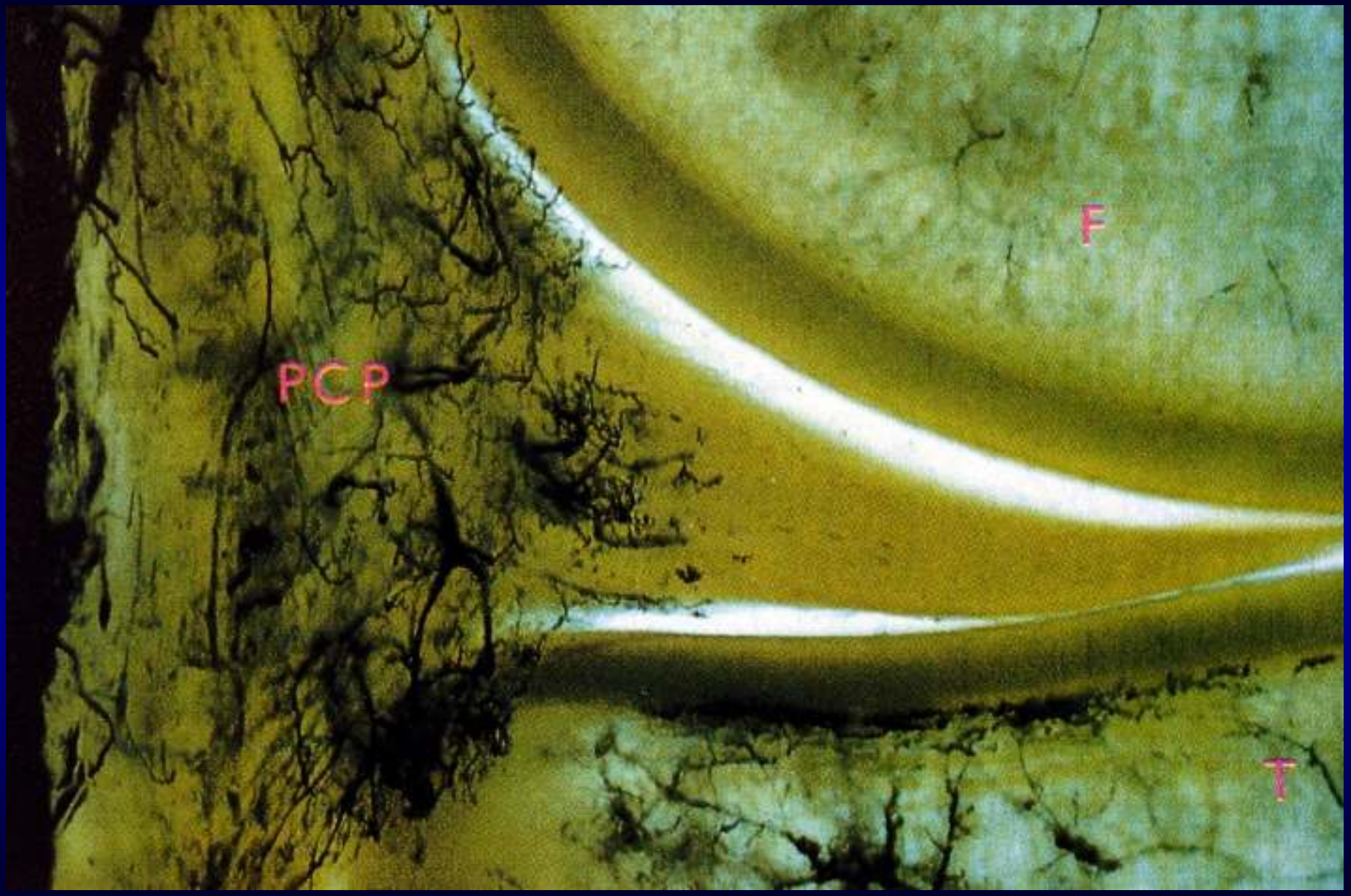
MENISCAL FUNCTION

POSTERIOR WEDGE


FILTRATE
ABSORPTION

Meniscal Vascularisation
(Clark 1983)

Child	total
Adolescent	partial
Adult	peripheral


PCP
F
T

THE BRITISH MEDICAL JOURNAL.

AN OPERATION FOR DISPLACED SEMILUNAR CARTILAGE.

By THOMAS ANNANDALE, F.R.S.E.,
Regius Professor of Clinical Surgery, University of Edinburgh.

THE pathology of the condition called by that wise old surgeon Hey, of Leeds, "internal derangement of the knee-joint;" by Sir Astley Cooper, "partial luxation of the thigh-bone from the semilunar cartilages," and which is now by some authors termed dislocation or displacement of the semilunar cartilages, has not yet been thoroughly worked out, as few opportunities occur for the dissection of a joint so affected. It is, however, a clinical fact that one of the semilunar cartilages, usually the internal one, does occasionally become loosened from its attachments; and, in consequence, this body is liable to be displaced either forwards or backwards, and so to interfere with the proper movements of the knee-joint.

April 18, 1885.

MENISCECTOMIES: AGES (1940-1968)

Years	*Case Number*	*Average Age*
1940-1943	M1-M500	27·6
1943-1945	M500-M1,000	28·6
1945-1951	M1,000-M1,500	30·1
1951-1953	M1,500-M2,000	32·9
1953-1955	M2,000-M2,500	33·7
1955-1957	M2,500-M3,000	34·5
1957-1958	M3,000-M3,500	34·6
1958-1959	M3,500-M4,000	35·7
1959-1961	M4,000-M4,500	36·4
1961-1962	M4,500-M5,000	36·1
1962-1963	M5,000-M5,500	37·5
1963-1964	M5,500-M6,000	37·9
1964-1965	M6,000-M6,500	39·8
1965-1966	M6,500-M7,000	39·8
1966-1967	M7,000-M7,500	40·8
1967-1968	M7,500-M8,000	41·3

IN DEFENCE OF THE MENISCUS

A PROSPECTIVE STUDY OF 200 MENISCECTOMY PATIENTS

J. NOBLE, K. ERAT

From The Princess Margaret Rose Orthopaedic Hospital, Edinburgh

Of 250 patients scheduled for meniscectomy 50 had symptoms which subsided and operation could be deferred; of the remaining 200 only 73 per cent were found to have a significant tear. It is shown that the risks of removing a normal meniscus far exceed those of leaving a tear in the posterior third. Statistical analysis of clinical features revealed no reliable diagnostic pattern.

Non-Operative Treatment of Meniscal Tears*

BY CARL B. WEISS, M.D.†, ROCHESTER, MAGNUS LUNDBERG, M.D.‡, PER HAMBERG, M.D.‡, LINKÖPING, KENNETH E. DeHAVEN, M.D.†, ROCHESTER, NEW YORK, AND JAN GILLQUIST, M.D.‡, LINKÖPING, SWEDEN

From the Department of Orthopaedics, University of Rochester Medical Center, Rochester, and the Department of Orthopaedic Surgery, University Hospital, Linköping

Hypermobility Syndrome

Patellar instability
Snapping knee
Meniscal subluxation

Snapping Knee

Discoid lateral meniscus
Patellar instability
Tibiofemoral subluxation
Meniscal impingement
Loose body
Plica syndrome
Extra articular band

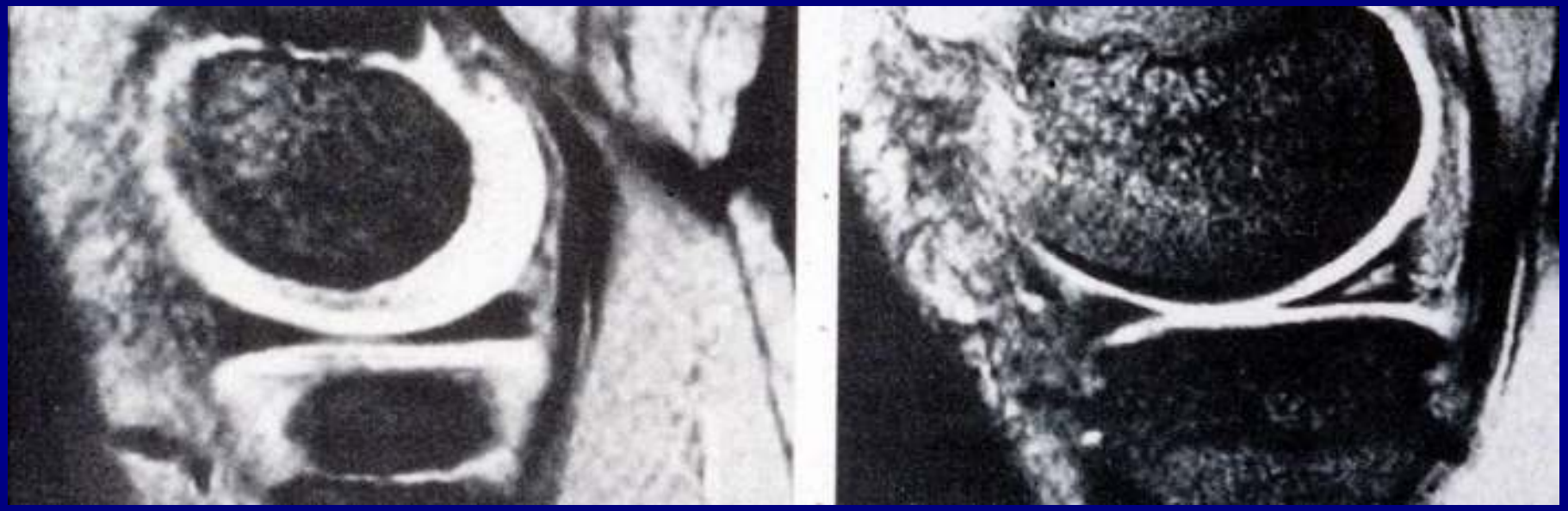
Takeda et al

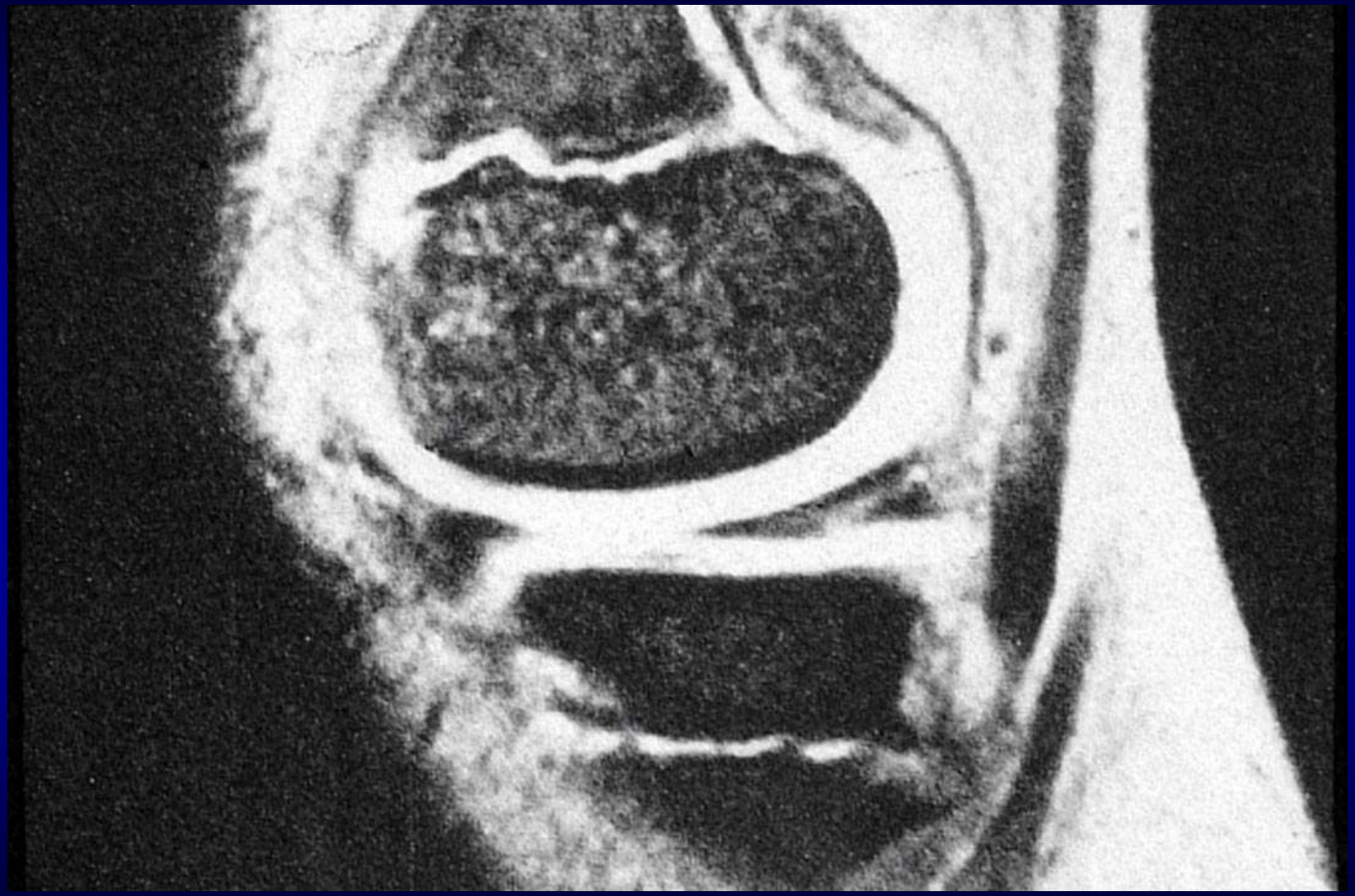
MRI high signal intensity in the menisci of symptomatic children

JBJS (Br) 80B:463-7 (1998)

80 children 12.2 yrs. (8-15)
Prevalence of meniscal signal 6% (29% in adults)

Grade 0 = normal (Lotysch et al 1986; Cruess et al 1987)
1 = globular or ovoid signal (no breach)
2 = linear or wedge-shaped signal (no breach)
3a = linear or wedge-shaped signal (? breach)





MR screening of the meniscus

JBJS (Br) 79B:463-3 (1997)

Specificity of 0.99 if surgeon and radiologist collaborate

false positive vascularity (posterior wedge)
healed tears
myxoid degeneration
previous operation - repair - excision - diathermy
fluid between meniscal and capsule
intermeniscal and other attachments

MR screening of the meniscus

JBJS (Br) 79B:463-3 (1997)

Specificity of 0.99 if surgeon and radiologist collaborate

false negative

- long delay between scan and arthroscopy
- anatomical variation (lat > med)
- errors of perception (electronic 3D at work-station better than hard copy)

Meniscal Repair

Scapinelli and Arnocksy (1968)
(Previous experimental work in dogs by King)

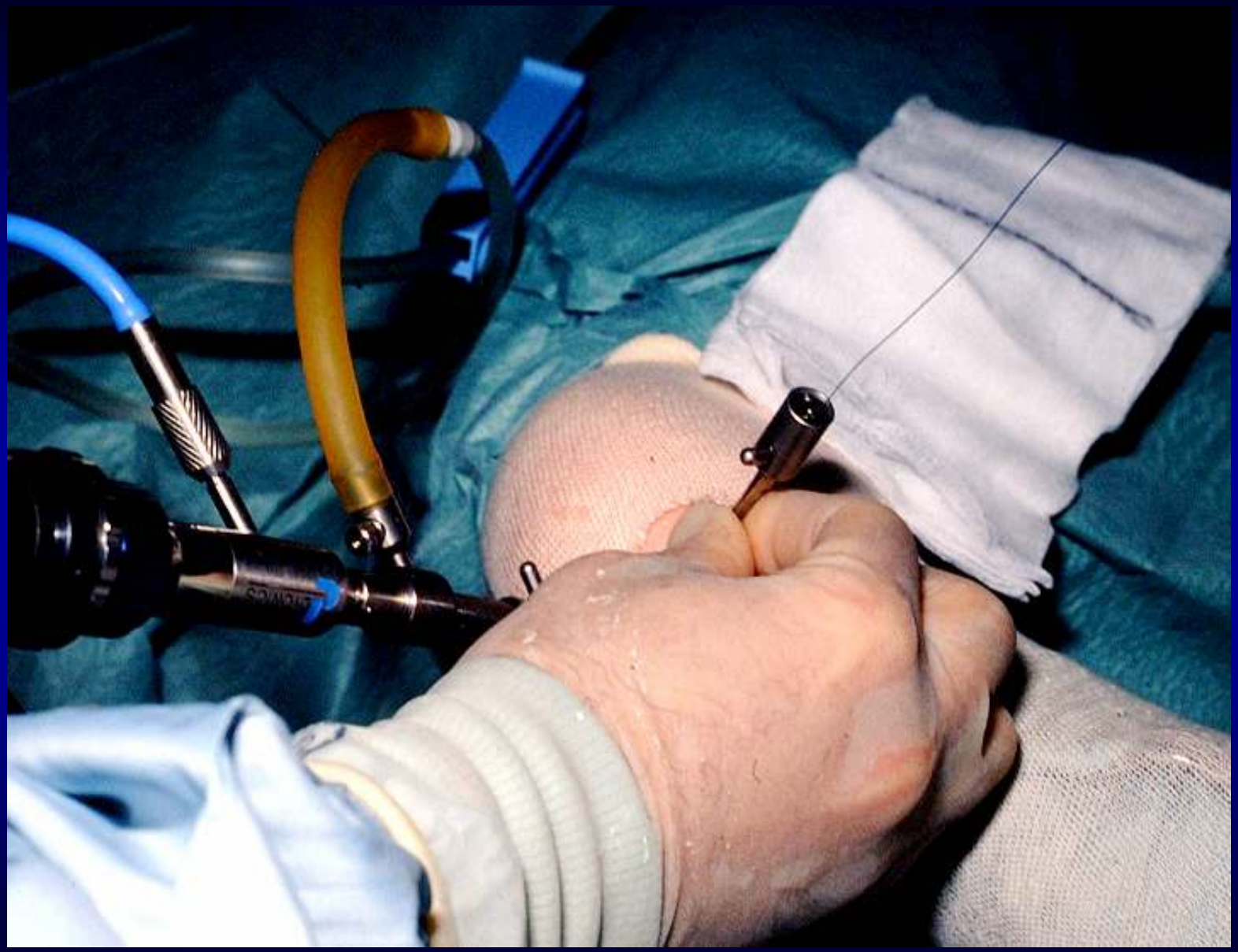
open technique	**Cassidy**	**(1981)**
	de Haven	**(1981)**
	Gillquist	**(1983)**
arthroscopic	**Henning**	**(1983)**
	Warren	**(1985)**
	Morgan & Casscells	**(1988)**

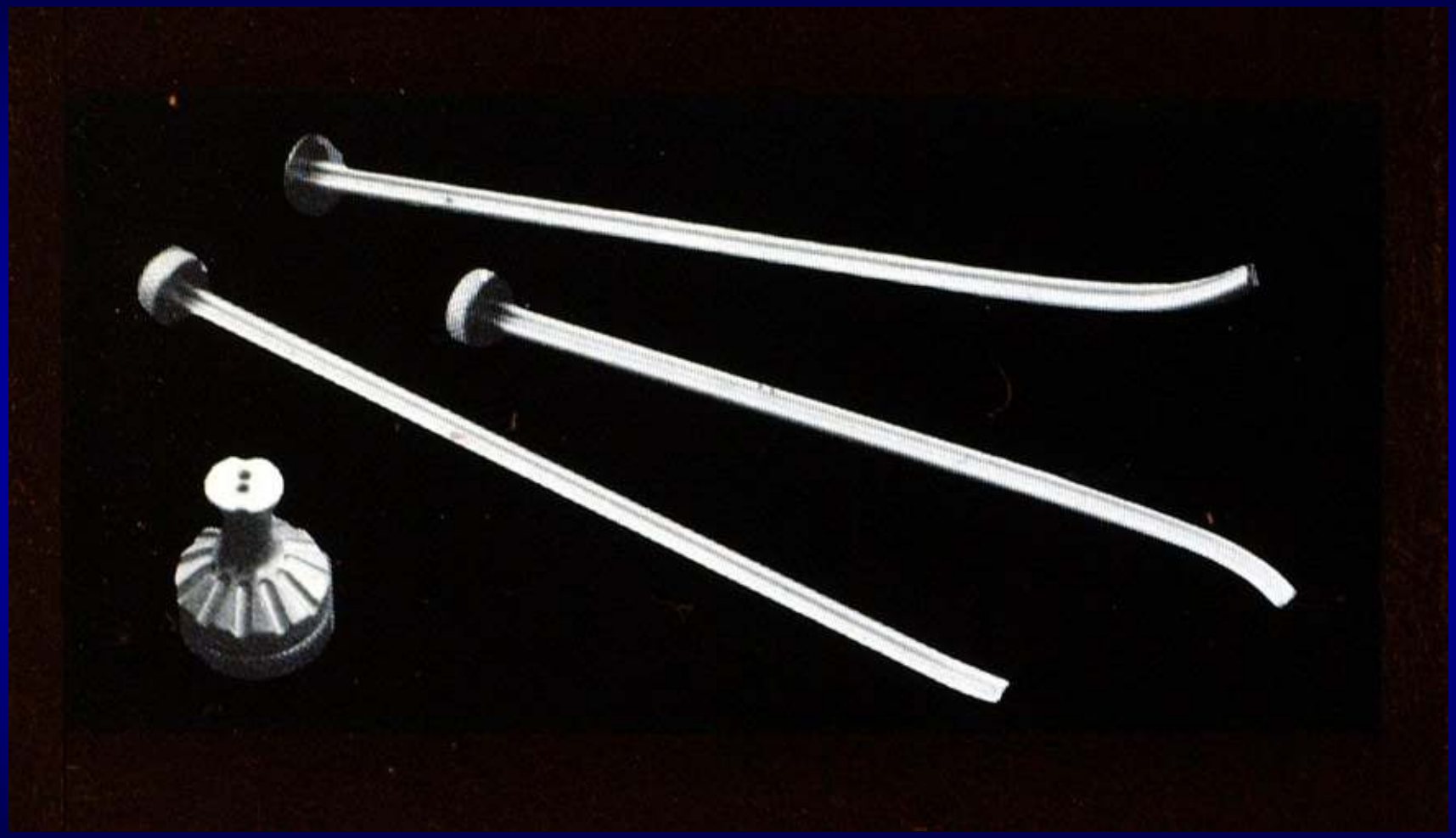

53-22
MADE IN ENGLAND

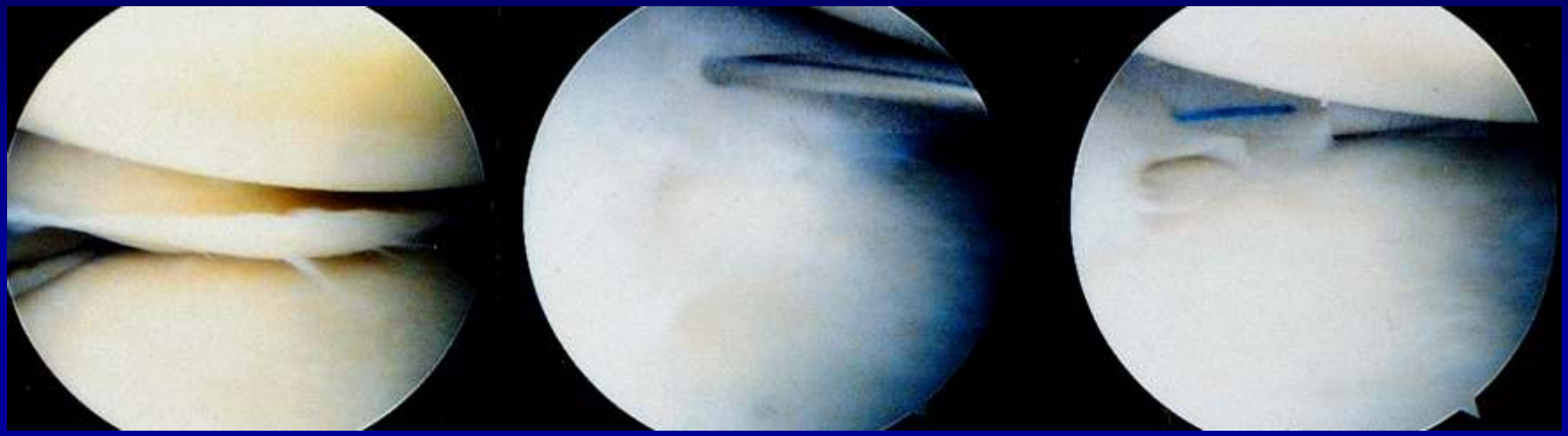
Meniscal Repair

Inside out (centrifugal)
Outside in (centripetal)

all inside - tack
staple
suture







Meniscal Repair in Children

21 cases	1982-1999
Medial meniscus	15
Lateral meniscus	6
Associated ACL injury	4
Later meniscectomy	5
complications	2 saphenous nerve paraesthesiae

Horibe et al

Second Look Arthroscopy after Meniscal Repair

JBJS (Br) 77B:245-9 (1995)

1986-93 278 tears in 264 patients
132 tears in 122 patients reviewed
9 had meniscal symptoms

73% completely healed (new tears in 21 of 132)
17% incompletely healed (near popliteus recess or with ACL incompetence)
"Stacked" suture no better than single

Extent of the Repair Technique

Debridement ?
Fibrin clot ?
Fascial sheath ?
Splintage ?

Complications of Meniscal repair

Injury — **intraarticular**, **periarticular** } **4 –10%**

(to the surgeon)

increased tourniquet time
postoperative morbidity
recurrence of the tear

The Case against Meniscal Repair

Peripheral tears heal spontaneously under the right conditions

Long term results of partial meniscectomy are reassuring if the peripheral rim is intact

No long term reviews to confirm that the repaired meniscus functions normally

Accessible central tears do not heal well

Late Presentation of Meniscal Tears

Meniscal distortion
Articular cartilage changes
Articular knee changes