LONG-TERM RESULTS OF CONGENITAL SCOLIOSIS TREATMENT

SINGLE BONE FUSION versus INSTRUMENTATED SURGERY

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Aim of the study

Evaluation of the clinical and X-ray long-term results of congenital scoliosis treatment managed by various techniques:

- conservative treatment
- single bone fusion
- posterior instrumentation
- combined a/p surgery

Material and Method

Retrospective study 1976 - 2006

442 pts.

Group A-conserv. treatment 175 pts.(40%)

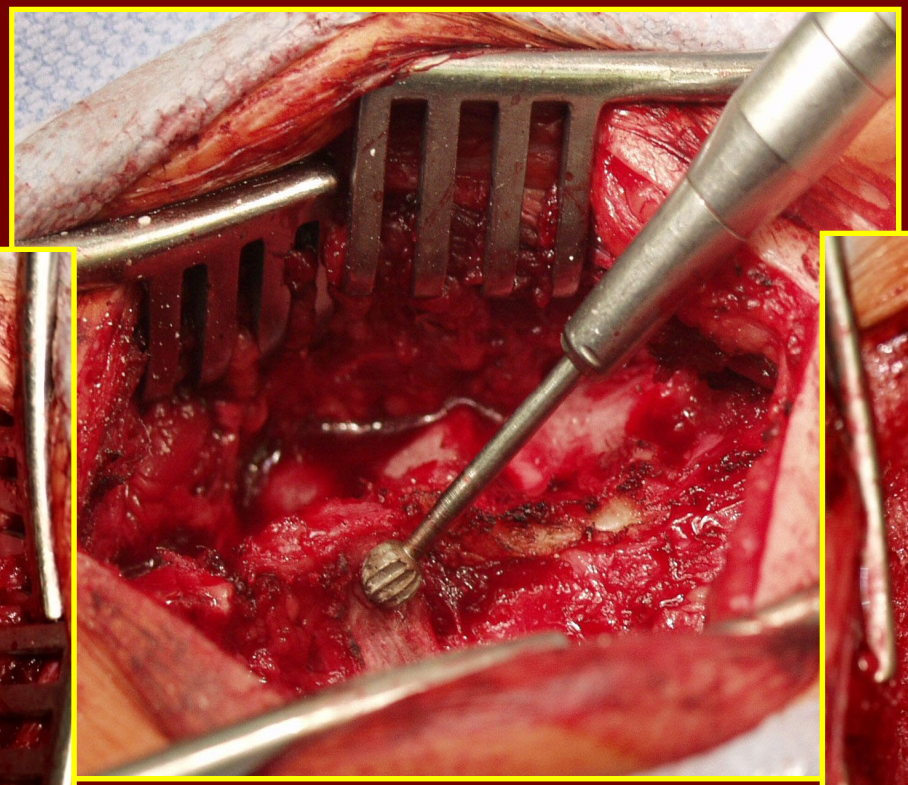
Group B-single bone fusion 64 (14%)

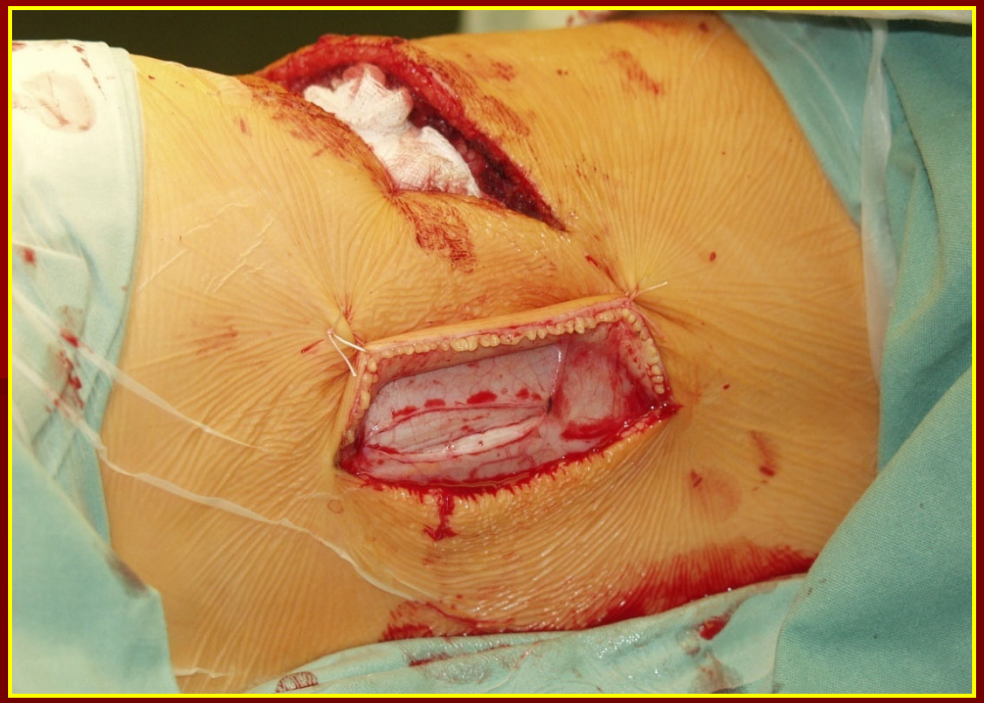
Group C-posterior instrum. 141 (32%)

Group D-combined a/p surgery 62 (14%)

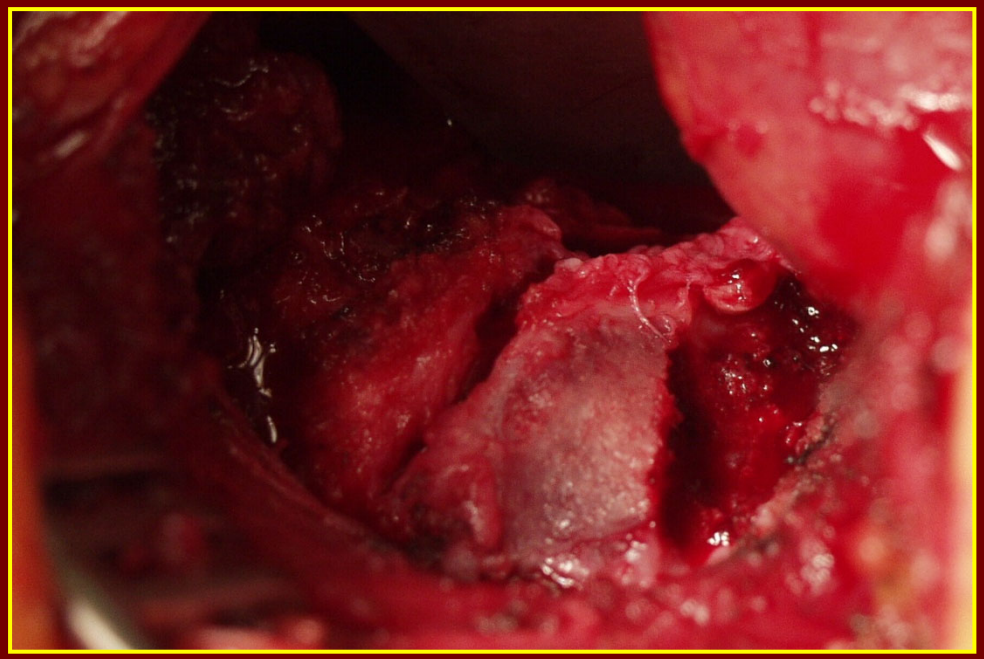
- D1-posterior instr.+strut graft 17 (27%)
- D2-ant. osteotomy+post.instr. 25 (40%)
- D3-hemivertebrectomy+post.instr. 20 (33%)

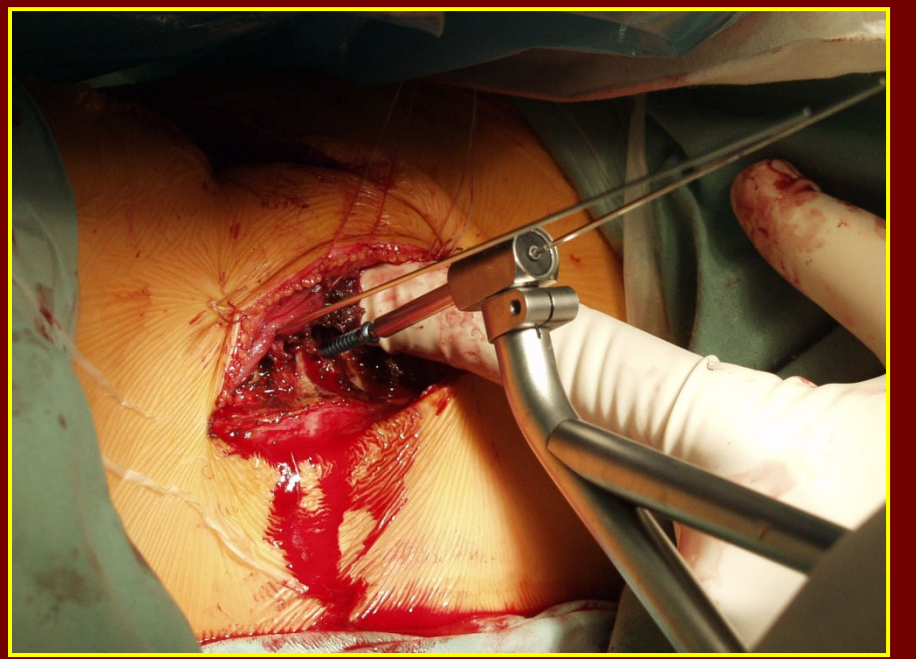
1/ Single bone fusion (group B)



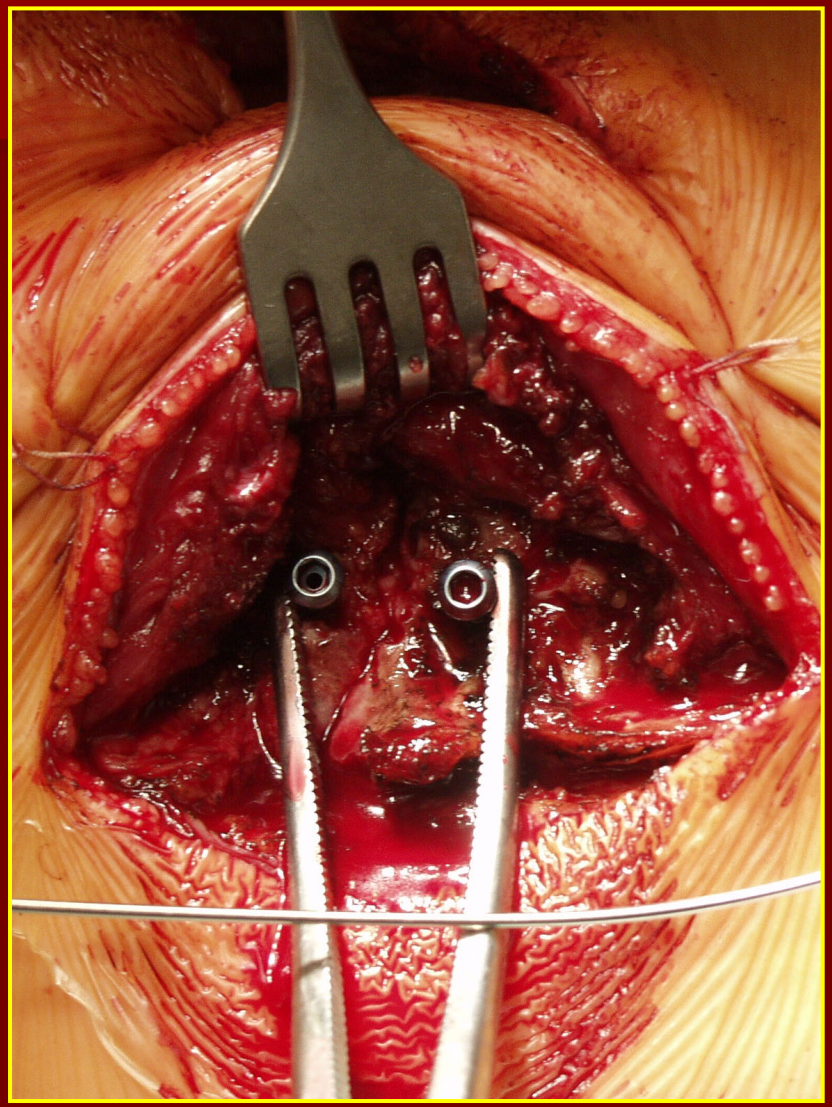


2/ Combined a-p approach (group D3)





Posterior stabilisation




12
42°
2
3
4

Results

	Group A conservative	Group B bone fusion	Group C post.instr.	Group D1 PIF+strut graft	Group D2 ant.OT+PIF	Group D3 hemivertebrekt.
Number of patients	175	64	141	17	25	20
age in detection time (y.)	6,5	1,7	4,2	3,2	3,5	3,4
grades in detection time	35,7	44,1	59,2	54,4	58,1	46,4
grades preop.	-	44,2	65,5	64,6	65	51,3
age in surgery	-	6,6	12,1	11,8	9,9	10,2
grades postop.	-	34	39,9	38,6	37	20,3
surgical correction	-	22%	38%	40%	43%	61%
grades in last control	39,8	38,4	45,1	39,2	41,1	21,4
final result	+4,1	-9,8	-14,1	-15,2	-17	-25
follow up (y.)	13,7	14,2	18,9	19,5	18,3	12,1

Complications

	Group A conservative	Group B bone fusion	Group C post.instr.	Group D1 PIF+strut graft	Group D2 ant.OT+PIF	Group D3 hemivertebrekt.
Number of compl.	17	16	38	10	7	2
neurologic	2	0	4	3	1	0
surface wound infection	-	5	6	1	1	1
deep wound infection	-	2	3	2	1	0
decubital ulcer	15	7	12	2	1	1
instr. failure	-	-	5	1	1	0
pseudoarthrosis	-	2	8	1	2	0

Disscussion
Single bone fusion

	No.of pts	av.age in surgery	final correction	FU
Uzumcugil	28	2,5	9%	3,4
our group	64	6,6	22%	14,2

•Uzumcugil A, Cil A, Yazici M, Acaroglu E, Alanay A, Aksoy C, Surat A.: Convex growth arrest in the treatment of congenital spinal deformities, revisited. J Pediatr Orthop. 2004 Nov-Dec;24(6):658-66.

Disscussion

Combined a/p surgery versus posterior only

	approach	No.of pts	av.age in surgery	correction	FU
Ruf	posterior	28	3,3	69%	3,5
Nakamura	posterior	5	5,4	43,4%	10
our group	combined a/p	20	10,2	61%	12,1

•Ruf M, Harms J.: Posterior hemivertebra resection with transpedicular instrumentation: early correction in children aged 1 to 6 years. Spine. 2003 Sep 15;28(18):2132-8.

•Nakamura H, Matsuda H, Konishi S, Yamano Y.: Single-stage excision of hemivertebrae via the posterior approach alone for congenital spine deformity: follow-up period longer than ten years. Spine. 2002 Jan 1;27(1):110-5.

Disscussion

Combined a/p surgery in children under 36 month

	No.of pts	av.age in surgery	correction	FU
Klemme	6	19m.	67%	2
our group	5	21m.	61%	5,1

•Klemme WR, Polly DW Jr, Orchowski JR.: Hemivertebral excision for congenital scoliosis in very young children. J Pediatr Orthop. 2001 Nov-Dec;21(6):761-4.

Conclusion 1

The main factors of quality treatment results:

- early detection
- good timing
- choosing of adequate surgical treatment type

Conclusion 2

The best surgical method for congenital scoliosis treatment seems **combined anterior/posterior surgical approach** with hemivertebrectomy and instrumentation stabilization.

Thank you
for your attention