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Severe Seat-Belt Syndrome in Children: A Case Report of two Children

Abstract

The so-called "seat-belt injuries" or "seat-belt syndromes", described as 2-point seat-belt injuries, contain heavy inflection injuries of the lumbar spinal column, combined with heavy abdominal injuries as rupture of the upper intestinal bold or heavy injuries of the upper entrails.

With "playing" children in the front of the car, with inappropriate plant of 3-point belts, identical injuries can occur.

Introduction

Since the sixties there are many publications about seat-belt syndrome or seat-belt injuries in children in the Angloamerican and German linguistic area [1, 2, 3, 4, 5, 6, 7, 8]. Mostly to the belts of point of 2, like the lap belts of the rear center, one refers (figure 1).

The injuries most described with seat-belt syndromes are L1 and L2 burst fractures, mostly AO-Type B1.2, B2.2 or B2.3 with heavy abdominal traumatic injuries like rupture of bowels, pancreas, liver or/and spleen. With the introduction of the

3-point seat-belts in the rear of the cars these heavy injuries were seen less or only by front passengers, sitting in the middle with a 2-point seat-belt fixation.

We would like to present a case of two girls, who suffered a traffic accident with inappropriate plant of 3-point belts as rear passengers, with which it had come to heavy "seat belt injuries".

Material/Method/Results

Two girls, 14 years and 11 years old, with 3-point belt system secured as rear passengers, suffered heavy abdomino-lumbale injuries by a traffic accident.

The 14 year old girl (patient 1) showed an initial GCS of 15 and stable cycle conditions, the 11 year old girl (patient 2) showed an initial GCS of 15 and unstable cycle conditions at the accident place.

After lead-in supply and rescue by means of helicopters the diagnostics in the clinic showed a L 3/4 spondylises with flexion without neurological deficit and rupture of the Jejunum (patient 1) (figure 2).

The 11 year old girl (patient 2) showed a spondylises with flexion of T 12/L 1 without neurological deficit, a rupture of the kidney on the right side, a rupture of the liver, the splen and the diaphragm and a rib series fracture with a haematopneumothorax (figure 3).

The immediate operational supply of the abdominal injuries took place, time-delayed in each case the spinal column injury was fixed with an internal fixture (figure 4).

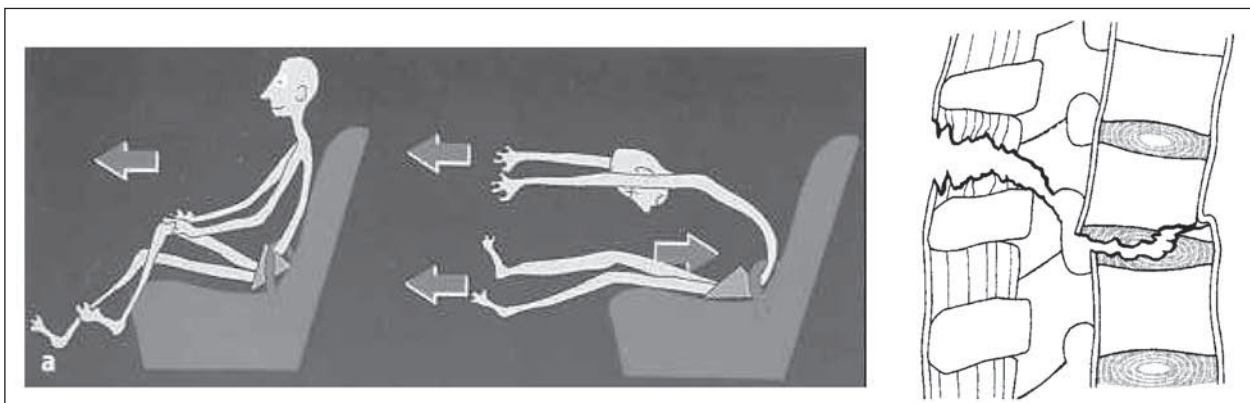


Fig. 1: Seat-belt injuries mechanism (H. TSCHERNE, M. BLAUTH et al.: Brust- und Lendenwirbelsäulenverletzung, Springer Verlag 1998, S. 257)

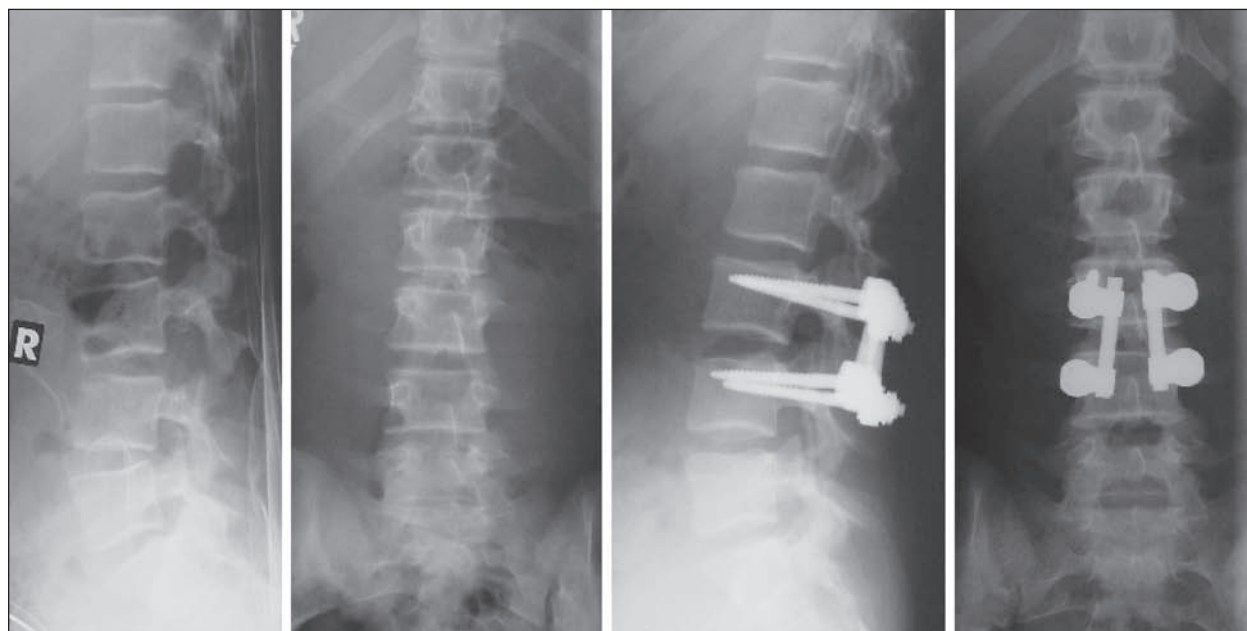


Fig. 2: L 3/4 fracture type B2.2, preoperative, postoperative with internal fixation

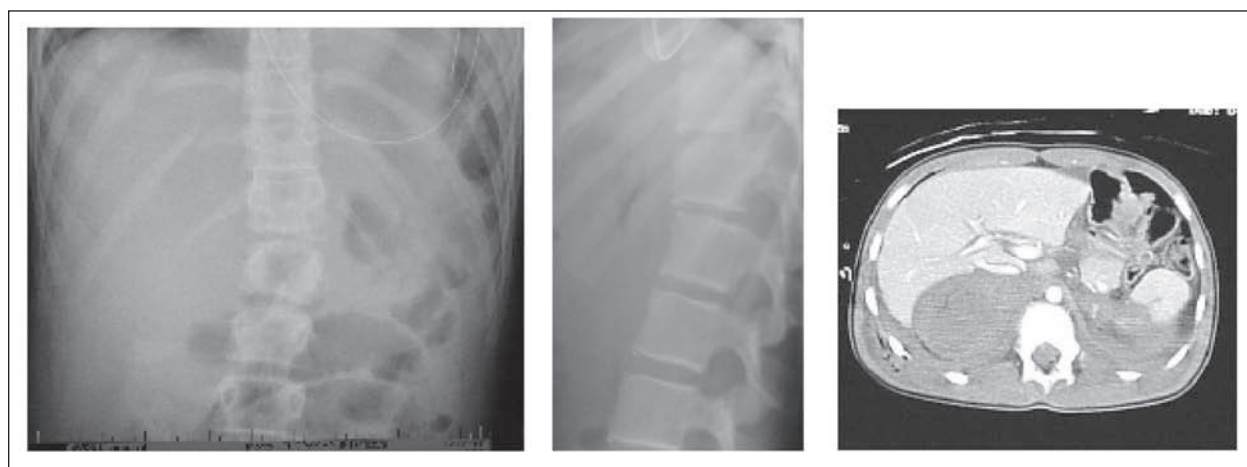


Fig. 3: T 12/L 1 fracture type B2.2, preoperative, rupture of kidney right side, liver, spleen

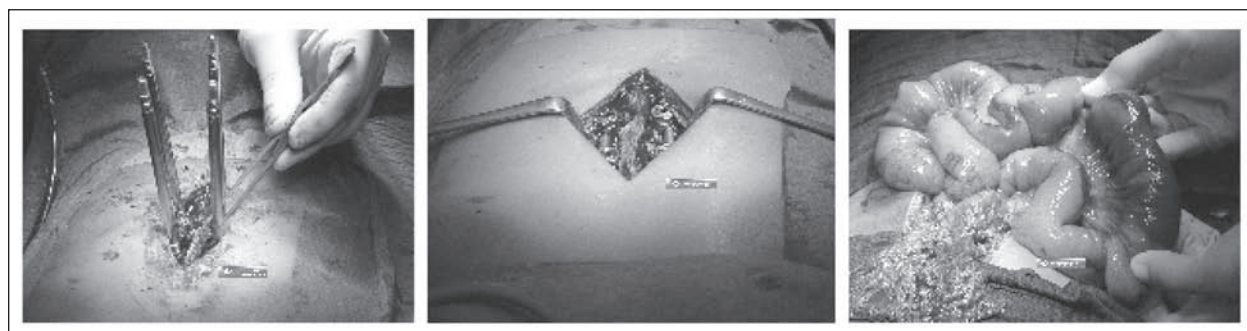


Fig. 4: Intraoperative view with stabilisation of the spine, exploration of the bowels

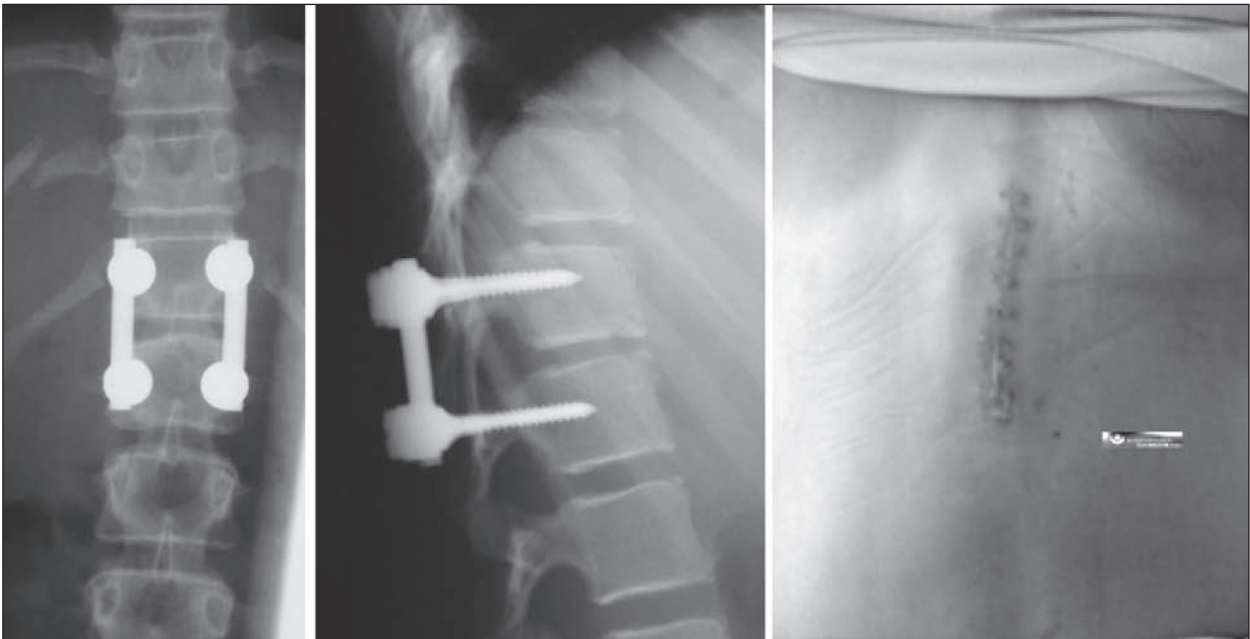


Fig. 5: Postoperative with internal fixation, clinical after 15 days



Fig. 6: Correct position of the 3-point belts, inappropriate plant of 3-point belts “playing children”

The stationary stay of both girls amounted to 20 days, of it on intensive care unit 10 days. The re-examination showed good results without consequences process, the ME of the interval fixture interne took place after 5 months, both girls showed a fully portable recover in each case with only small spinal column complaints.

Conclusion

The so called “seat-belt injuries” or “seat-belt syndromes”, described as 2-point seat-belt injuries, contain heavy inflection injuries of the lumbal spinal column, combined with heavy abdominal injuries as rupture of the upper intestinal bold or heavy injuries of the upper entrails. With “playing” children in the font of the car, with inappropriate plant of 3-point belts, identical injuries can occur.

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