

SETTING UP EXPERIENCE WITH A CUSTOM-MADE BRACE SYSTEM FOR PECTUS CARINATUM WITHIN THE NHS

Melissa Short, Katheryn Green, Dakshesh Parikh, [Alberto Attilio Scarpa](#)
The Birmingham Children's Hospital NHS FT, Birmingham, UK

Aim: Correction by compression is not a new concept within surgical and dental specialities. However, NHS management of Pectus Carinatum (PC) does not include compression bracing, with operative correction offered to select few. We detail our setting-up experience of a pectus brace service and a pilot study outcome.

Methods: We evaluated a variety of pectus braces available and selected the custom-made lightweight iSurgical3D(Portugal) dynamic compression system (DCS). PC pilot was set up with charitable/private finances to bolster the business case. This was presented and is awaiting commissioner's approval (on average open correction costs 5,500GBP compared to Brace 1000GBP).

Assessments included: Skeletal, lung function and echo, clinical photography and 3DCT-scan to map the deformity and construct a personalised brace. Patients performed sternal manipulation exercises while awaiting the DCS delivery. Once the brace was fitted, the wearing time threshold was increased to 23hours/day for the correction phase and tightened periodically as tolerated. They were encouraged to follow physiotherapeutic exercises, to improve posture and develop core support. Patients were advised to look after skin pressure points and keep their initial bimonthly follow-up with clinical photographs.

Results: Nine patients 8 boys, (median age 16; range 14-17years) with moderate to severe PC were fitted with DCS. One brace needed revision because of uncomfortable adaptation to her petite body shape. Compliance with brace was better in all 8 boys but tolerance to compression was variable ranging from 6 to 23hours. Deformity improvement was seen to some extent in 6, while noticeable correction was seen in 2(25%) boys after just 3months. One achieved almost full correction of PC but reported redness at the back pressure point.

Conclusions: Literature evidence and our pilot suggest Pectus brace correction is effective. The reduced costs and lack of utilization of inpatient resources alongside reduced morbidity should appeal to commissioners for their financial support.