The development of this condition, also referred to as 'breathing difficulties of various degrees', was due to the fact that these patients were operated on before the age of 4 years [3, 4] and recommended that the repair of pectus excavatum should be delayed until they became teenagers. In our view, the problem with these patients was not that they were operated on too early, but that the surgical technique was faulty, i.e. a too radical resection of the costal cartilages and extirpation of the growth plates, both which interfered with the future growth of the thoracic cage. We have proven in our clinical material that with an appropriate surgical technique, which includes conservative cartilaginous resection and the preservation of the growth centres, the correction of pectus excavatum may be safely performed even in the very young [5].

The present question is whether experiences gained in open pectus excavatum repair be applied also to the Nuss operation? While the Nuss procedure does not involve the resection of the cartilages, the transfixion of the anterior chest wall with rigid
metal bars may indeed cause the same damage as the over-radical open operation, by restricting growth and expansion. Neither Park nor any other authors have addressed this concern.

One is also obliged to raise the issue of the indication for the Nuss operation in general and its appropriateness in the very young in particular. It needs to be realized that the Nuss procedure is not only not ‘minimally invasive’ but it is ‘maximally intrusive’. Using the now outmoded ‘classic’ Ravitch operation [5], which is performed through a long vertical incision and leaves the sternum unsupported as a control group, is simply unacceptable. The modern modifications of the ‘Ravitch’ are performed through a 5–6-cm (albeit anterior) exposure, use permanent substernal mesh support and do not need reoperation. If done properly, complications are rare and the results are excellent [6]. The Nuss operation on the other hand involves passing massive metal rod(s) through both pleural cavities and through the narrow sternopericardial space and leaves them in place for extended time periods after which the removal requires a second intervention. Complications are frequent and occasionally deadly, and vary from cardiac and pulmonary lacerations to mediastinitis and a paralyzed diaphragm, sequelae seldom, if ever seen with open repair. Even if the perioperative course of the Nuss procedure is uneventful, the danger of complications, especially the dislodging of the bar and perforation of vital organs persist as long as the bars are left in place. The adult patient, at the very least, has the sense of trying to protect his chest transfixed with a steel bar overlaying his heart. A young child does not. It is doubtful whether the Nuss operation should be used at all. It is even less certain whether it should be applied in the very young.

REFERENCES