Surgery for an ‘acute erection angle’, when counseling fails

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INTRODUCTION

A hyper-erect penis is a rare anomaly of the penile erectile deficit angle. This phenomenon was first introduced by Daniel Yachia as the ‘hyper-erection’. However, because this term suggests a cause-effect relationship with the intensity of sexual arousal, which is most definitely not the case, the authors of this article have decided it to be more appropriate to use the term ‘acute erection angle’.

An acute erection angle may be caused by severe shortness of the penile suspensory ligament (PSL), severe dorsal curvature at the penopubic level or a combination of both. This article describes the clinical history and subsequent treatment of two men who have had sexual problems due to their acute erection angle. This ground-knowledge is particularly provided for urologists and sexologists in order to offer clear information on the great variations in erection angles and, in case of coital difficulties, on the possible surgical treatment options.

Case I

A 40-year old Caucasian male and his 36-year-old wife were referred to the urologist because of coital difficulties. They were in a 7-year relationship. Since the start of the relationship the female had experienced pain in the distal anterior vaginal wall during intercourse. In addition, she had irritating vaginal flatulence. The couple reported that coitus with female on top position was not physically possible, although neither the male nor the female had encountered severe coital difficulties in former relationships. On photographic examination an acute erection angle was diagnosed (figure 1a). There were no signs of Peyronie’s disease. The patient and his partner were counseled about the possible surgical treatment options: partial release of the suspensory ligament, a ventral

![Figure 1. An acute erection angle. Homemade photograph (A) and at 18 months follow up after corporoplasty (B)](image-url)
corporoplasty according to Nesbit or, if necessary, a combination of both. The potential drawbacks of both procedures were discussed extensively, especially shortening after a Nesbit procedure and instability in erection after ligament release. Together with the patient we decided to start surgery with a ventral corporoplasty according to Nesbit. During surgery including its intermittent artificial erection tests it became clear that this was sufficient. At 18 months follow up the erect penis showed an erection angle of approximately 45 degrees from vertical (figure 1b).

Case II
A 41-year old Caucasian male was referred to the urologist for coital difficulties since the beginning of his sexual career. He had experienced various relationships. At the time of the intake he was in a stable heterosexual relationship, lasting 12 months. The couple complained about not being able to have intercourse in various positions, especially that with the female on top. At home photographs showed an acute erection angle in combination with a 25 degree congenital dorsal curvature. There were no signs of Peyronie’s disease. After counseling the patient chose for partial release of the PSL and not for correction of the curvature. The surgical technique in this case included identifying the PSL proper via a transverse infrapubic incision. Once identified, the ligament was released gradually until a 45-degree erection angle was reached, as shown by intermittent artificial erection tests (figure 2b). To prevent re-attaching the pubic bone and the cavernous bodies were separated by interposing some suprapubic fat and two folded GentaFleece® collagen fleeces.

**Figure 2.** Induction after an acute erection angle with Saline (A) and the result after releasing the suspensory ligament (B)
Following surgery both males were advised to wear boxer-shorts type underwear, not to wear the penis upwards toward the abdomen, not to wear tight trousers, and to delay sexual intercourse for 6 weeks. Unfortunately, we were not able to realize MRI's of their erect penis, neither preoperatively nor postoperatively.

Both males had a 9-month follow up assessment of the functional status of the penis; including residual deformities and ability to have sexual intercourse. Both were satisfied with the surgical outcome. ‘Good’ surgical outcome was defined as correction of the penile anomaly, no instability and normal sexual intercourse without pain, including ‘female on top’ position.

DISCUSSION

On entering the keyword `erection angle` in search engine Google, 1.700.000 hits are exposed. However, by contrast, textbooks of urology and sexology provide only very limited information about erection angle dysfunction and do not include any description of the problems with regards of the erection angle. Furthermore, a PubMed search on `erection angle` provides only one relevant reference.

The penile suspensory ligaments support and maintain the erect penis in an upright position during sexual intercourse. The suspensory apparatus of the penis consists of the fundiform ligament, the suspensory ligament proper and the arcuate subpubic ligament. The fundiform ligament is superficial and not adherent to the tunica albuginea, whilst the suspensory ligament proper bridges between the symphysis pubis and the tunica albuginea of the corpora cavernosa; in its course it circumscribes the dorsal vein of the penis. The arcuate subpubic ligament runs a similar course to the suspensory ligament. It is a slightly denser structure and lies further posterior. Functionally, the ligaments maintain the base of the penis in front of the pubis and acts as a major point of support for the erect penis during sexual intercourse.

Abnormalities of the suspensory apparatus can be congenital, often presenting with a ventral curvature of the penis, or acquired secondary to penile trauma. In males with a long heavy penis or a loose suspensory ligament, the angle usually will not be sharp, even with full rigidity. When the ligament is too short, it will decrease the angle between the penis and the abdominal wall, making penetration difficult, if not impossible. The more skywards the penis points, the less flexible the erection is and the more careful one has to be when using it, especially with the female on top position. It’s possible to fracture the penis, so a male with an acute erection angle should not attempt to get too acrobatic during intercourse. In addition, deep upward thrusts can put uncomfortable pressure on the anterior vaginal wall, causing pain and/or the urge to urinate.
Undoubtedly, the entity of ‘acute erection angle’ is uncommon. The diagnosis can be made by at home photography. However, the degree of curvature measured using at home photography will be underestimated as compared with intracavernous injection. Office photographs after intracavernous injection are more accurately to determine the degree of curvature. For several reasons it is advisable to evaluate sexual functioning by a validated questionnaire as the IIEF.

According to Yachia the initial surgical approach of an acute erection angle is through an infrapubic incision. A 4-5 cm long horizontal incision is made along the lower edge of the symphysis and carried down through the suprapubic fat until the space between the penile base and the ligament area is reached. Since one of the reasons is shortness of the suspensory ligament proper, its partial release will decrease the erectile angle down from vertical. If partial release is not sufficient, checked by artificial saline erection, a complete transection may be done. This however may result in instability of the erect penis, but according to Yachia this can be corrected by corporopexy. By this approach an artificial erection is created after the ligament is cut. With the penis in an erect state the corporopexy sutures are applied and, keeping the penis in 60 to 90 degree erection angle, the 2/0 braided polyester sutures are tied.

An acute erection angle can also be treated by ventral corporoplasty according to Nesbit. In our first case corporoplasty was sufficient. This of course needs another approach than the infrapubic one; a degloving procedure was performed.

If one prefers to combine ventral corporoplasty with PSL release, the single-incision perineal approach described by Lupu and Gillespie may be a good alternative. With this approach the ventral corporoplasty is performed, the resulting erection angle checked, and then the ligament release is done accordingly. It should be stressed that this approach necessitates sufficient experience.

The first Kinsey report was concerned principally with sexual behavior but also reported on the topic of erection angle. The authors wrote: ‘In any age group there is considerable variation in the angle at which the erect penis is carried on the standing male. The average position, calculated from all ages, is very slightly above the horizontal, but there are approximately 15 to 20 percent of the cases where the angle is about 45° above the horizontal, and 8 to 10 percent of the males who carry the erect penis nearly vertically, more or tightly against the belly.’ A profound strength of the Kinsey report was its large database, but a weakness (for the study of erections) was the fact that the data were self-reported. Sparling’s reanalysis of the Kinsey data plus documented photo data from a sample of 81 males between the age of 21 and 67 years showed more erection angles in the lower ranges (table 1).
### Table 1. Erection angles comparing self-reported and photo documented data

<table>
<thead>
<tr>
<th>Angle in 0° down from vertical</th>
<th>Kinsey sample, n=1357</th>
<th>Sparling sample, n=81</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-30°</td>
<td>10.7 %</td>
<td>4.9 %</td>
</tr>
<tr>
<td>30-60°</td>
<td>27.6 %</td>
<td>29.6 %</td>
</tr>
<tr>
<td>60-85°</td>
<td>30.3 %</td>
<td>30.9 %</td>
</tr>
<tr>
<td>85-95°</td>
<td>24.1 %</td>
<td>9.9 %</td>
</tr>
<tr>
<td>95-120°</td>
<td>7.1 %</td>
<td>19.8 %</td>
</tr>
<tr>
<td>120-180°</td>
<td>0.2 %</td>
<td>4.9 %</td>
</tr>
</tbody>
</table>

### CONCLUSIONS

In modern society, with its huge access to internet information, couples may complain of very specific sexual concerns. In a social climate that emphasizes the importance of sexual ‘performance’, one is less reticent in presenting a problem such as coital difficulties due to an acute erection angle. Counseling a couple with complaints of sexual inadequacy which has resulted specifically from this abnormality should be based on objective reassuring information about anatomical and physiological facts. In addition, psychological reasons for painful intercourse should be explored. Furthermore, health care professionals are to offer sex-educational information on more enhanced functional penile positions for sexual intercourse in different positions. However, in our experience taking a passive attitude, such as ‘leaving it to nature’ or leaving the couple to grapple/experiment with a set of instructions, does not always work out well. Hence, when counseling has failed to provide relief, simple and safe surgical techniques can yield adequate results.
REFERENCES
