

Frequency of So-Called Hypoplastic or Dysgenetic Zones in Scrotal and Otherwise Normal Human Testes*

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Hypoplastic zones are by definition circumscribed groups of small coiled up tubules which are filled with a syncytial cellular layer. The nuclei of these cells are radially placed, either oval and containing little chromatin and no clearly visible nucleolus, or oblong, slender and strikingly rich in chromatin. The syncytium is bound by the basement membrane and the tunica propria of the tubules containing fibroblasts, collagen fibres and some scarce elastic fibrils (Fig. 1).

Such zones are considered to be an effect of a testicular malformation as they particularly concern cryptorchid testes (KOCHENBURGER, LECÈNE and CHEVASSU, SOHVAL, recent summaries by GUILLEMIN and JOHNSTON). These authors point out that all transitions from a single hypoplastic tubule to the "adenoma-like" proliferations occur. These lesions were given various names as hypoplastic tubules, dysgenetic zone or tubular adenoma. In the recent literature these areas or zones are even defined as focal hyperplasia of Sertoli cells (COLLINS and SYMINGTON) or Sertoli cell tumor.

Hypoplastic zones were also described in some cases with scrotal and otherwise completely regular testes (HEDINGER and PLATTNER, PLATTNER, HALLEY). Therefore, to get an idea about the occurrence and the frequency of these hypoplastic zones we controlled a large series of macroscopically normal and descended testes.

Material and Method

Our investigation includes 124 selected autopsy cases of the departments of pathology of Basle, Lucerne, Winterthur and St. Gall (Switzerland)¹. It concerns male subjects from 15 to 39 years of age who died by accidents, suicide or severe systemic diseases. There were no pathological changes in the endocrine system, neither clinically nor at autopsy. The testes of all the 124 cases were regular and descended. All the testes were fixed in formalin 4% and cut into 8 slices about 5 mm thick. Every second slice was embedded in paraffin and stained with H.E., Elastin-Weigert, PAS and van Gieson. Thus we examined at least 16 cross-sections of every single testis. If a hypoplastic zone was doubtful, we investigated the adjoining areas by serial sections.

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Results

In a total of 124 analyzed pairs of testes we found 27 cases with hypoplastic zones. In 7 cases both sides were affected, in 20 cases only one side. If we classify the investigated material according to age we get the picture displayed

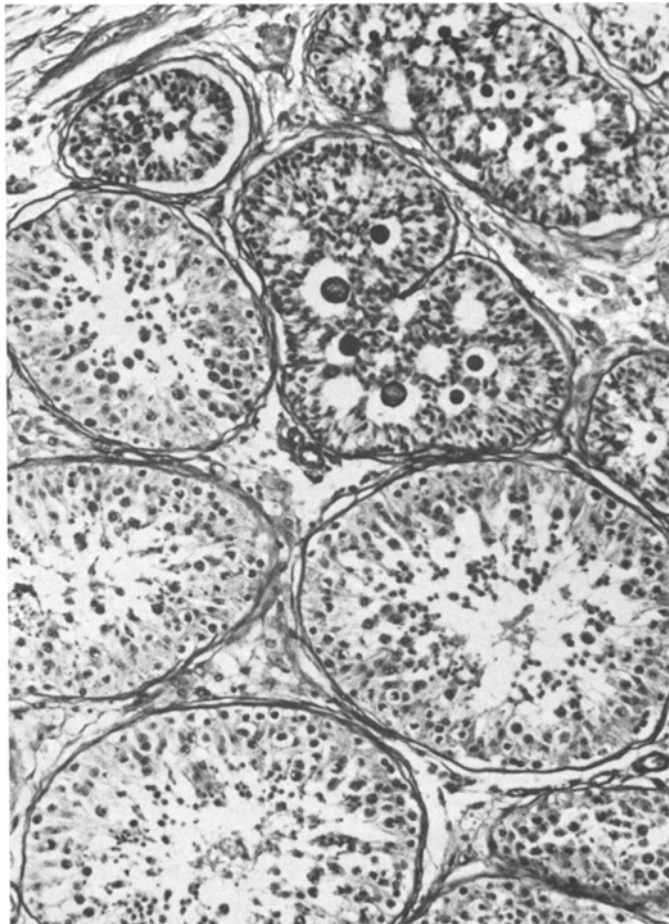


Fig. 1. Hypoplastic zone under the tunica albuginea in a otherwise normal and descended testes of a 25 years old man, died by accident. At autopsy fracture of the skull, epidural hematoma and horseshoe-kidney. Both testes macroscopically normal and descended. (PAS, $\times 150$)

in Fig. 2. The frequency of hypoplastic zones diminishes with increasing age. We could not find any hypoplastic zone at all in the testes of 22 men from 35 to 39 years old. Older men are not included in our investigation.

6 of the 7 cases with bilaterally affected testes concerned young subjects from 15 to 19 years, the seventh being 25 years old. The testes of 3 men between 20 and 32 years showed doubtful hypoplastic zones which we did not consider as the findings were not convincing even after revision by serial sections.

In 13 of the 27 cases the remaining testicular tissue was microscopically normal. 7 pairs of testes showed a moderate reduction of the germinal epithelium and 6 a localised or diffuse atrophy. In one testis of a fifteen-year-old an incomplete development of the residual testicular tissue was found.

Discussion

Hypoplastic zones are not unusual in normally descended and macroscopically regular testes. We found them in 22% of the investigated cases. 12 or nearly 50% of the cases with hypoplastic zones concern young subjects 15 to 19 years old. 6 of these showed this alteration in both testes and 6 only in one. With increasing age the frequency of the hypoplastic zones diminishes continually and in testes of men over 35 years we could not find them any more.

What is the reason for the disappearance of these tubules? Either the tubules become atrophic and disappear, or they develop into real seminiferous tubules. Actually, HEDINGER and PLATTNER and PLATTNER suppose that under appropriate conditions the hypoplastic zones can become mature tubules. According to our material this possibility must be taken in consideration especially as no scars could be found. On the other hand we can not exclude the possibility that these tubules disappear entirely.

According to our investigation hypoplastic zones should not be taken for a symptom of a major congenital defect. Nearly half of our cases showed beside the hypoplastic zones completely normal testicular tissue. Therefore, these zones should not be connected with the genesis of cryptorchidism. Obviously they are so frequent in cryptorchid testes because they do not disappear as in normally descended testes, but may grow into nearly adenoma like foci. Nevertheless, hypoplastic zones should not be defined as adenomas. We agree with COLLINS and SYMINGTON who strictly separate the real sertoli cell tumor from the hypoplastic zones.

Summary

In 124 selected autopsy cases we found 27 cases with so-called hypoplastic zones in scrotal and otherwise normal testes. In seven cases both sides were affected. The frequency of hypoplastic zones diminishes with increasing age. The significance of this fact is discussed. We conclude that hypoplastic zones should not be considered as a sign of major congenital defect.

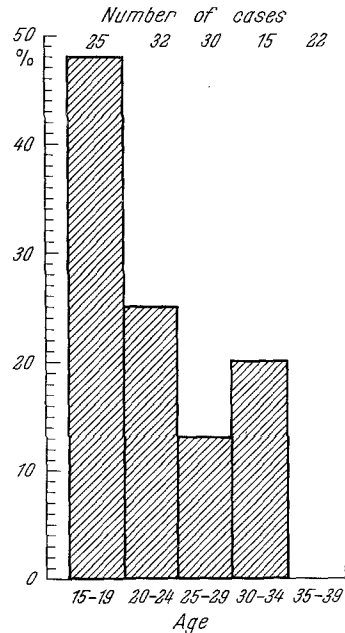


Fig. 2. Percentage of cases with hypoplastic zones in different age groups

Über die Häufigkeit der sog. hypoplastischen (dysgenetischen) Zonen in sonst normalen Scrotalhoden

Zusammenfassung

In einer Gruppe von 124 ausgewählten Autopsien von Männern im Alter zwischen 15 und 39 Jahren konnten bei 20 Fällen in einem der beiden Hoden, bei 7 Fällen in beiden Hoden, hypoplastische Zonen nachgewiesen werden. Die Häufigkeit der hypoplastischen Zonen nimmt mit zunehmendem Alter rasch ab. In Anbetracht der großen Häufigkeit hypoplastischer Zonen dürften derartige Herde in descendierten und sonst normalen Hoden nicht als belangreiche Mißbildung gedeutet werden.

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