

Testicular Cancer

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Testicular Cancer

- From mystery to far-advanced disease: a remarkable case
- Case Presentation....

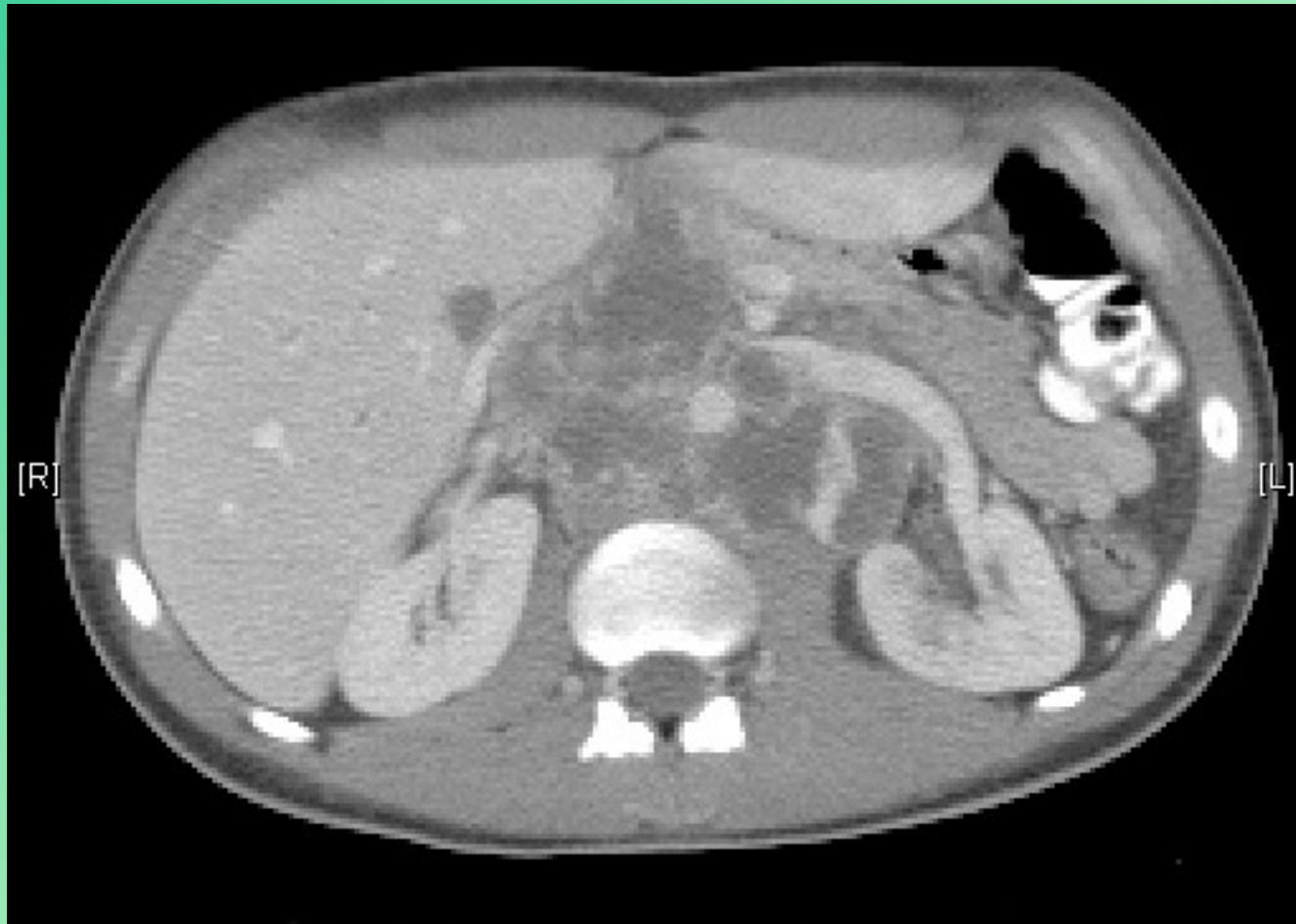
- 23 y. o. male presented with a 4-6 week history of left scrotal pain and fullness in his spermatic cord. He also was having severe low back pain, no appetite and 20 pound weight loss.

- Patient had been seen by a primary care physician and a urologist in New York City for these complaints in May, 2008.
- A renal ultrasound was done. The report noted normal kidneys and vena cava.
- Physical exam at that time reportedly revealed a left varicocele and a normal testis on both sides.

- Physical exam in late June confirmed the presence of the left varicocele.
- Both testicles were normal to palpation.
- However, he also had a large epigastric mass, gynecomastia, and a large left supraclavicular mass.

- Office testicular ultrasound showed both testicles to be normal with the exception of an irregular 1 cm mixed hypoechoic area in the upper pole of the left testis. This did not have the appearance of the usual testis cancer.

CT scan

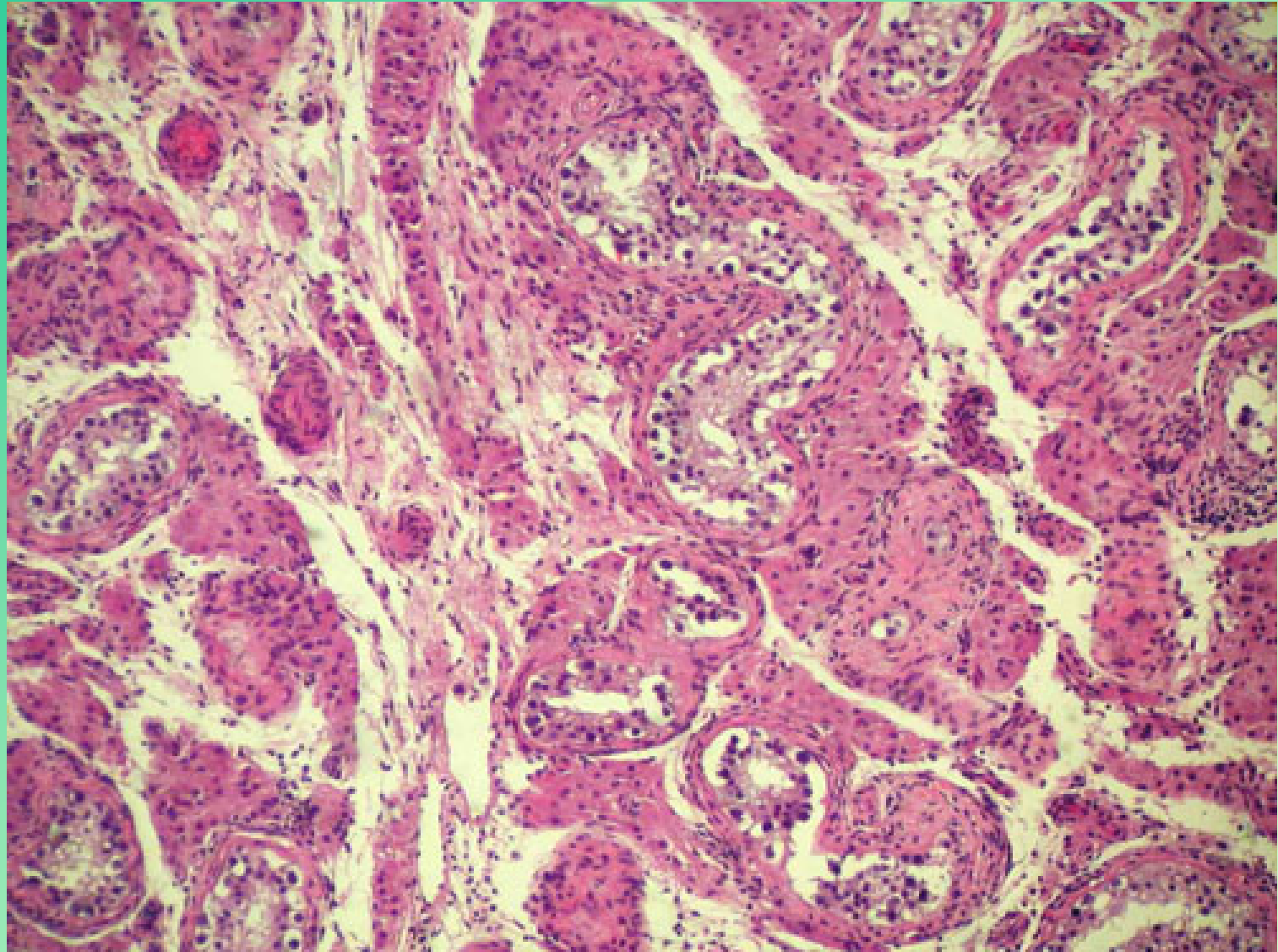


- Tumor markers
- α -fetoprotein - 1 ng
- β -HCG - 383,700
- LDH - 407 [100 -190]

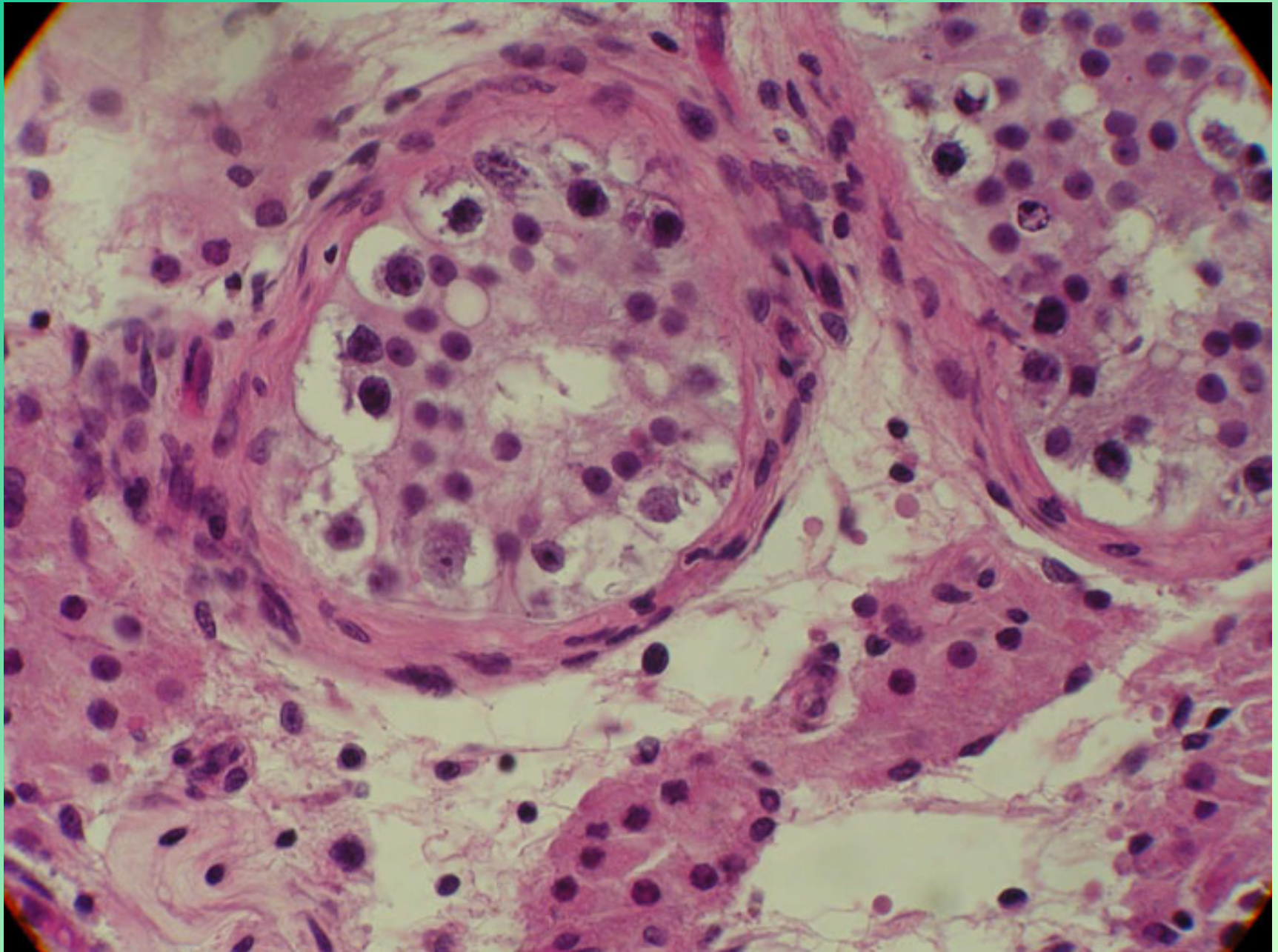
- How to get tissue diagnosis ?
- Usual treatment diagnostic procedure is inguinal orchiectomy on the involved side
- Left orchiectomy performed based on US findings

- Next step – needle biopsy and aspiration of retroperitoneal mass
- Pathology reports

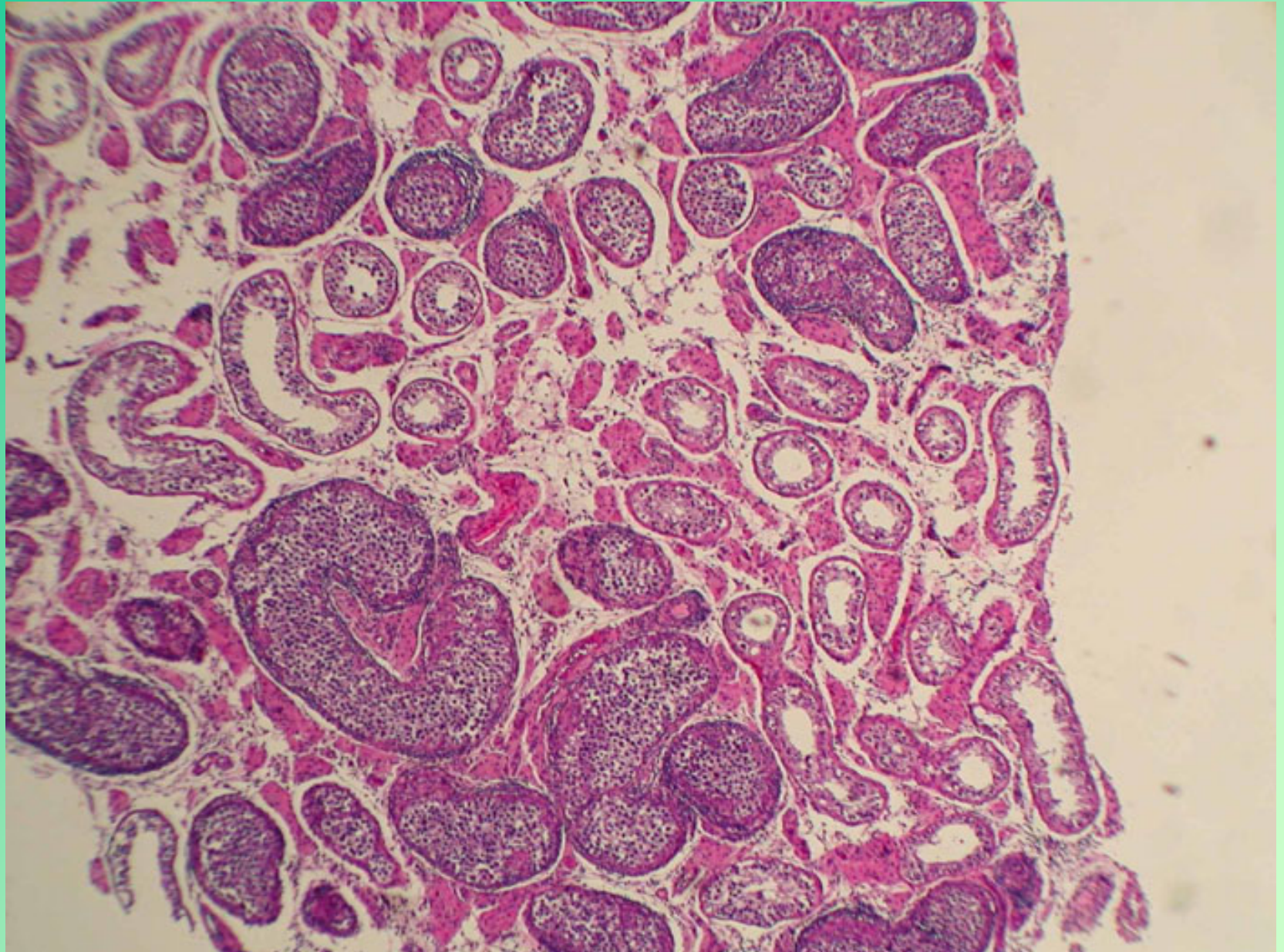
Normal Testis



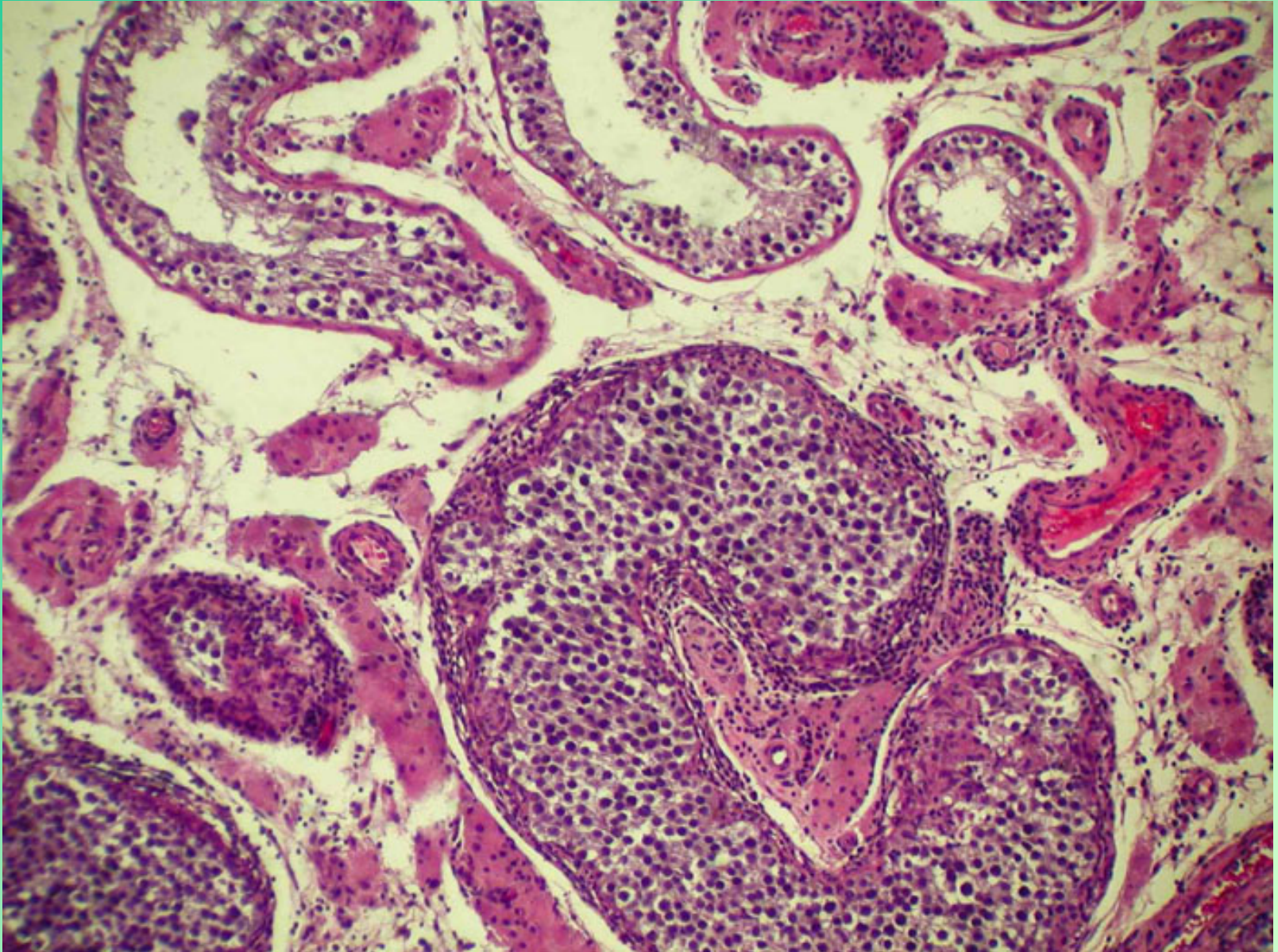
Testicular Tubule Seen Under High Power



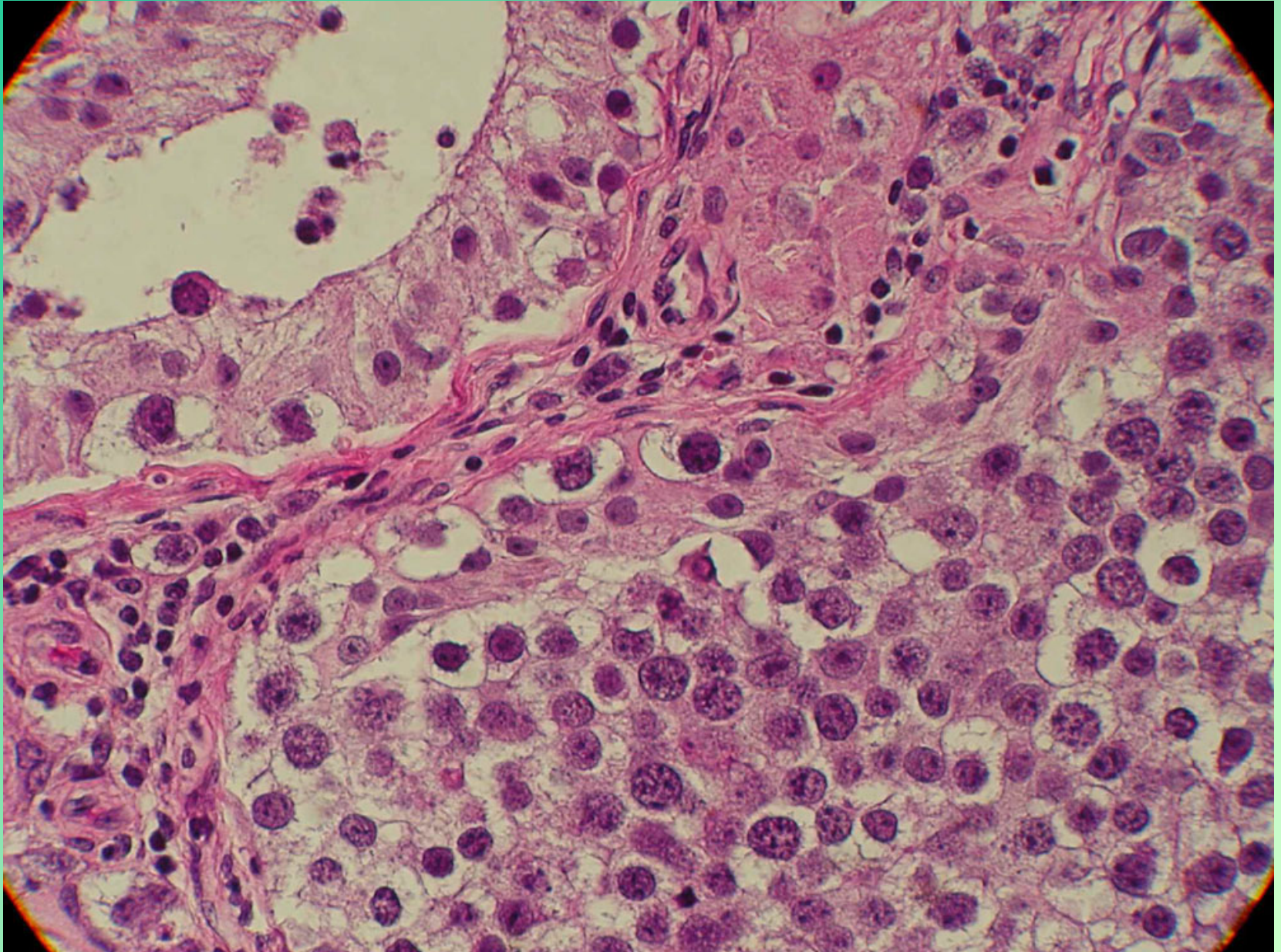
Intratubular germ cell neoplasia seen in our patient



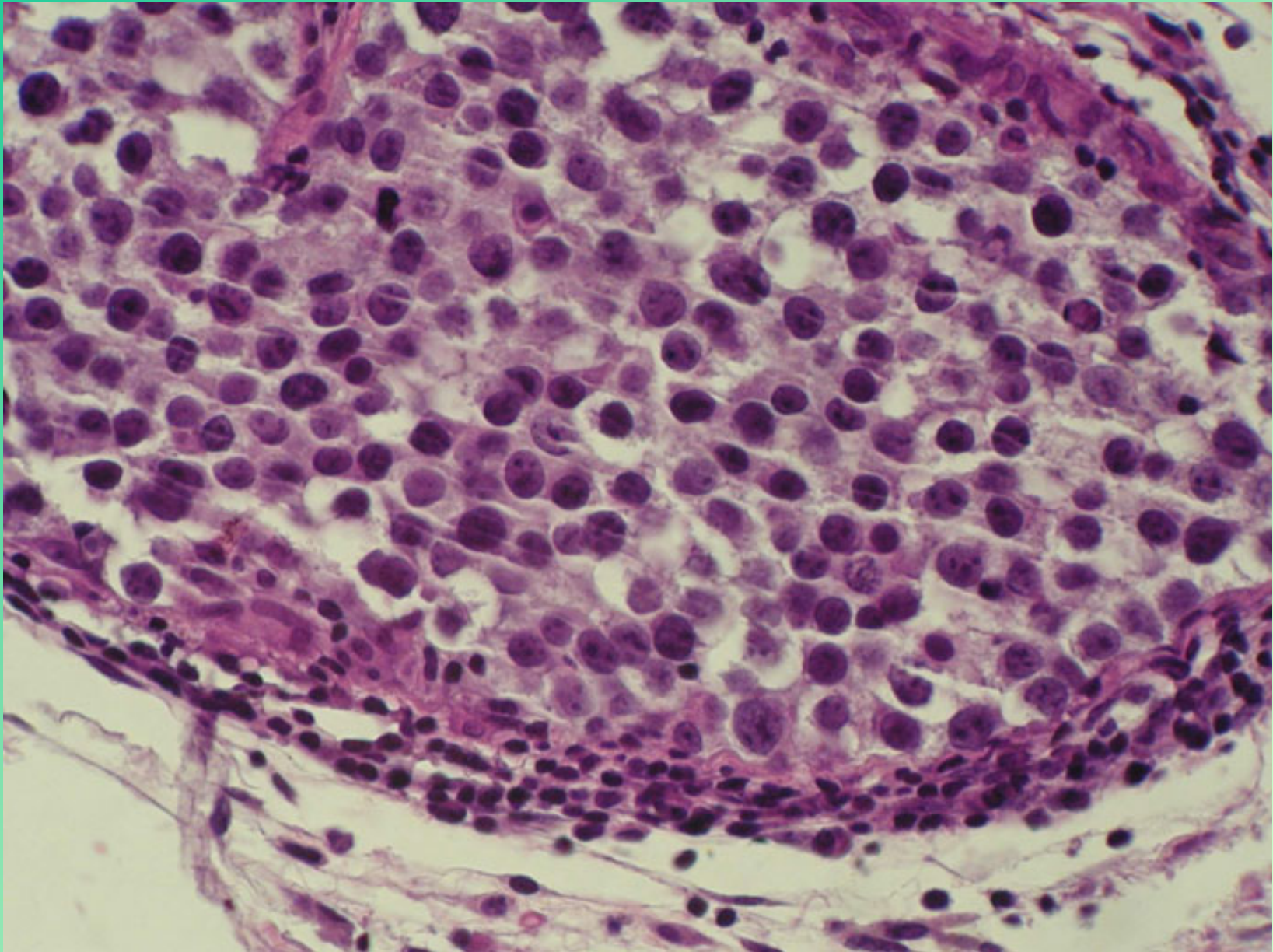
Intratubular germ cell neoplasia (higher power)



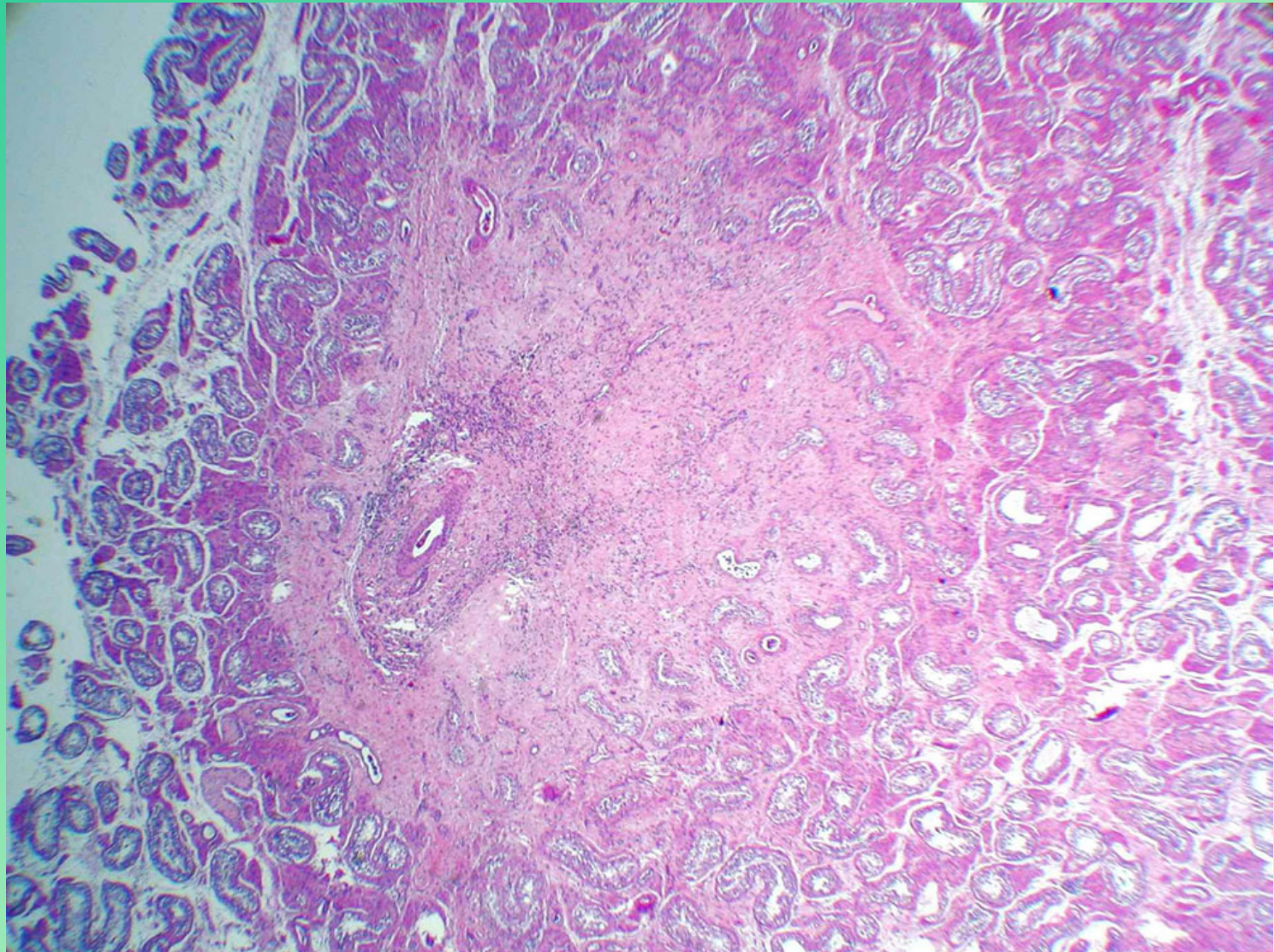
Normal tissue upper left; germ-cell neoplasia lower right



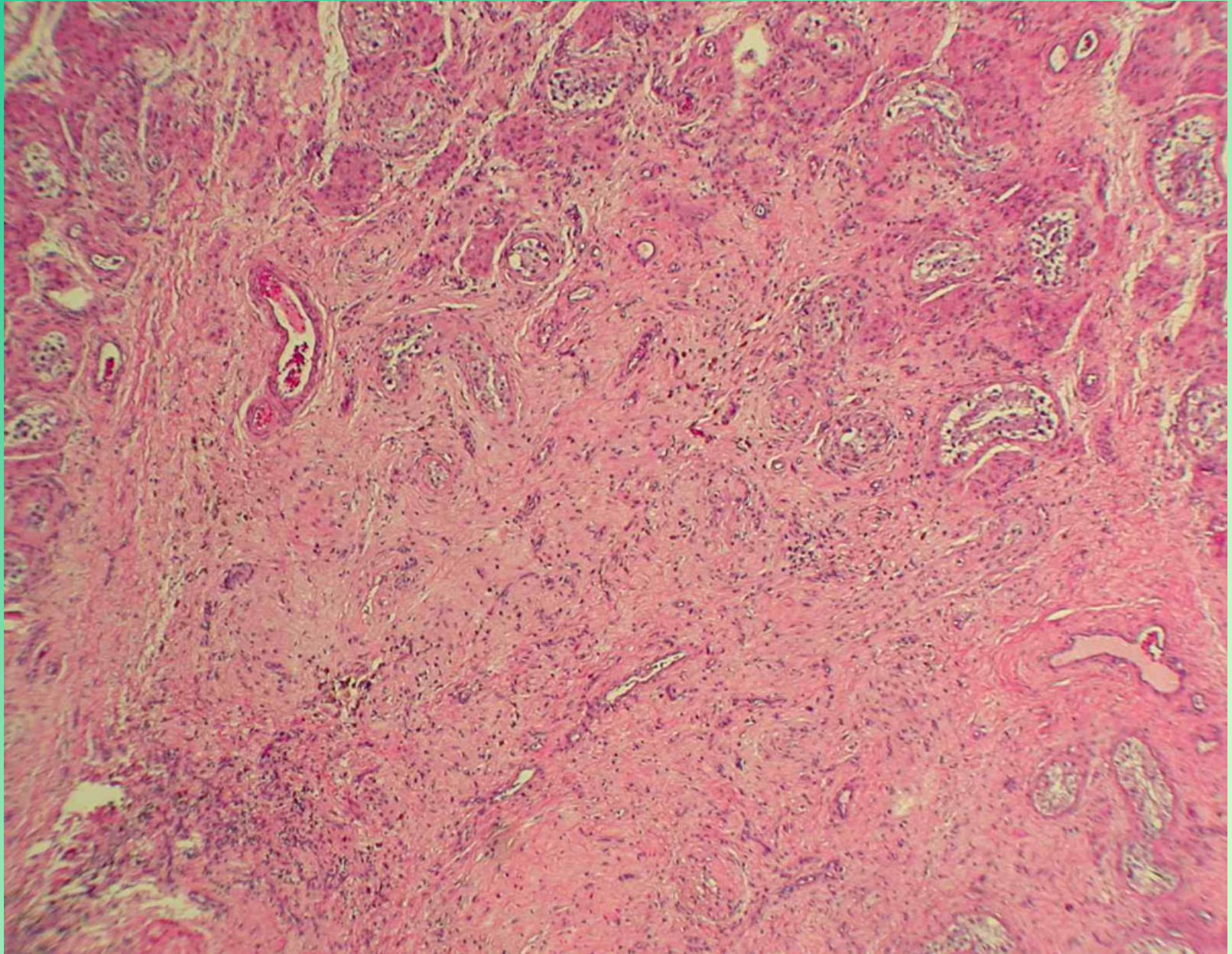
Higher power intratubular germ-cell neoplasm as seen in our patient



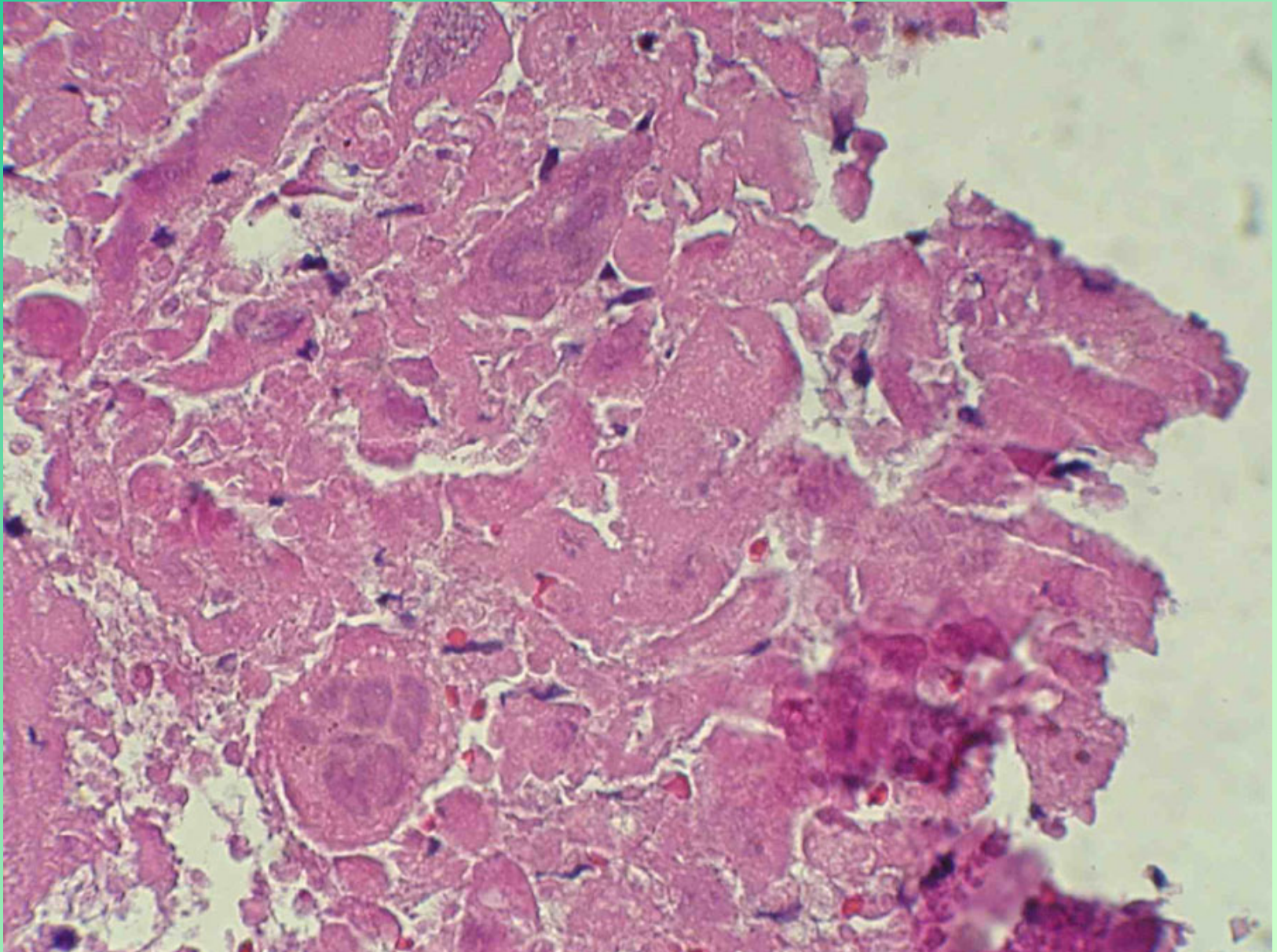
Scar in testis – probably correlates with abnormality seen on ultrasound



Higher power view of scar



Fine-needle aspirate of retroperitoneal mass: choriocarcinoma



- Summary thus far: metastatic cancer, most likely originating in testicle
- Only invasive component seen in retroperitoneum: pure choriocarcinoma
- Testicular primary likely outgrew blood supply and auto-infarcted (“scar”)
- Possibility of primary in retroperitoneum not totally excluded

- Word of thanks to pathologists and interventional radiologist for helping expedite the work up
- This patient was in serious trouble
- Time for medical oncology to save the day

Case Presentation, continued

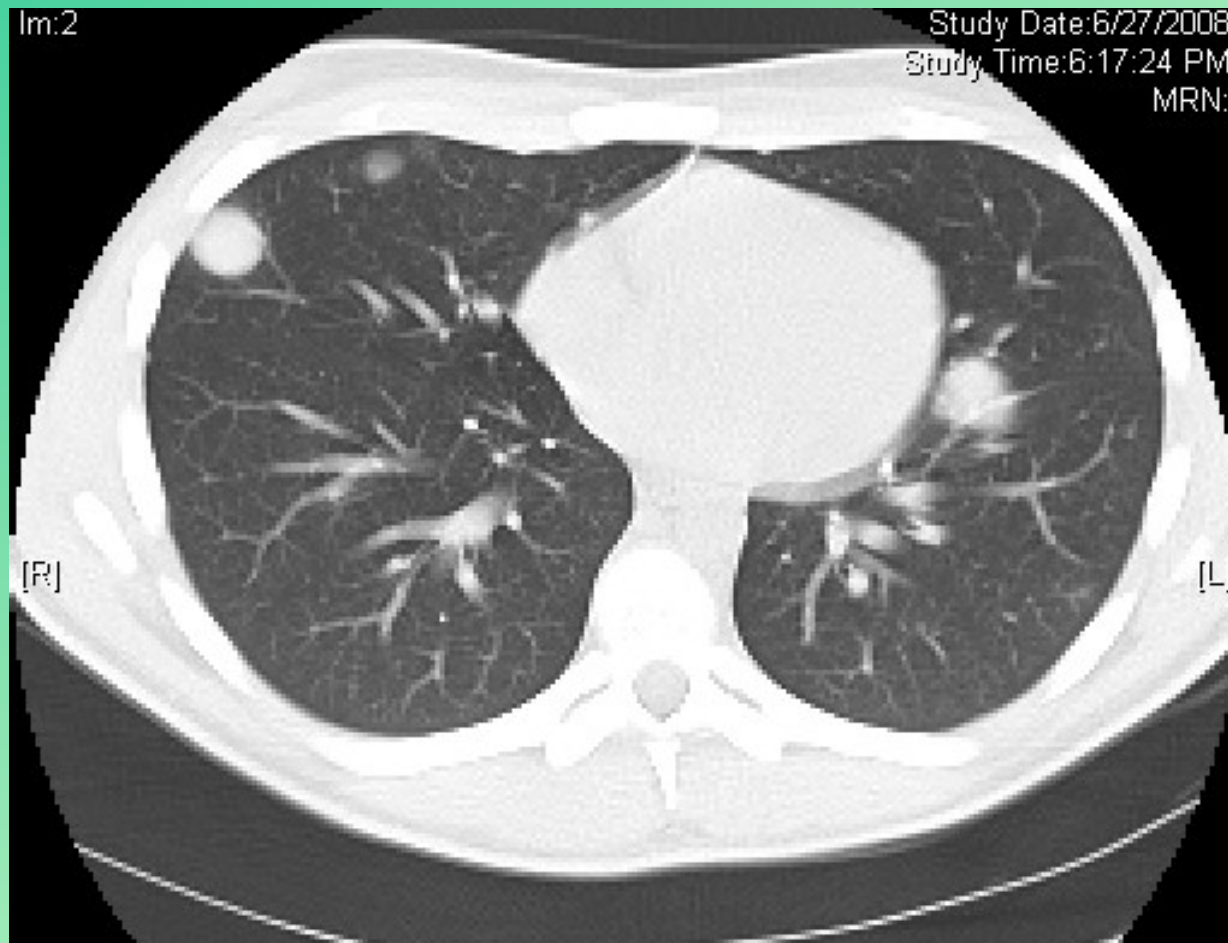
- First seen in medical oncology office on July 10, 2008
- Constitutionally ill
 - Severe back pain
 - 25 pound weight loss
 - Nipple tenderness and morning sickness
- Physical Examination
 - Thin to point of emaciation
 - 8 cm conglomerate mass base of left neck at junction of cervical and supraclavicular chains
 - Bilateral gynecomastia

Laboratory Results

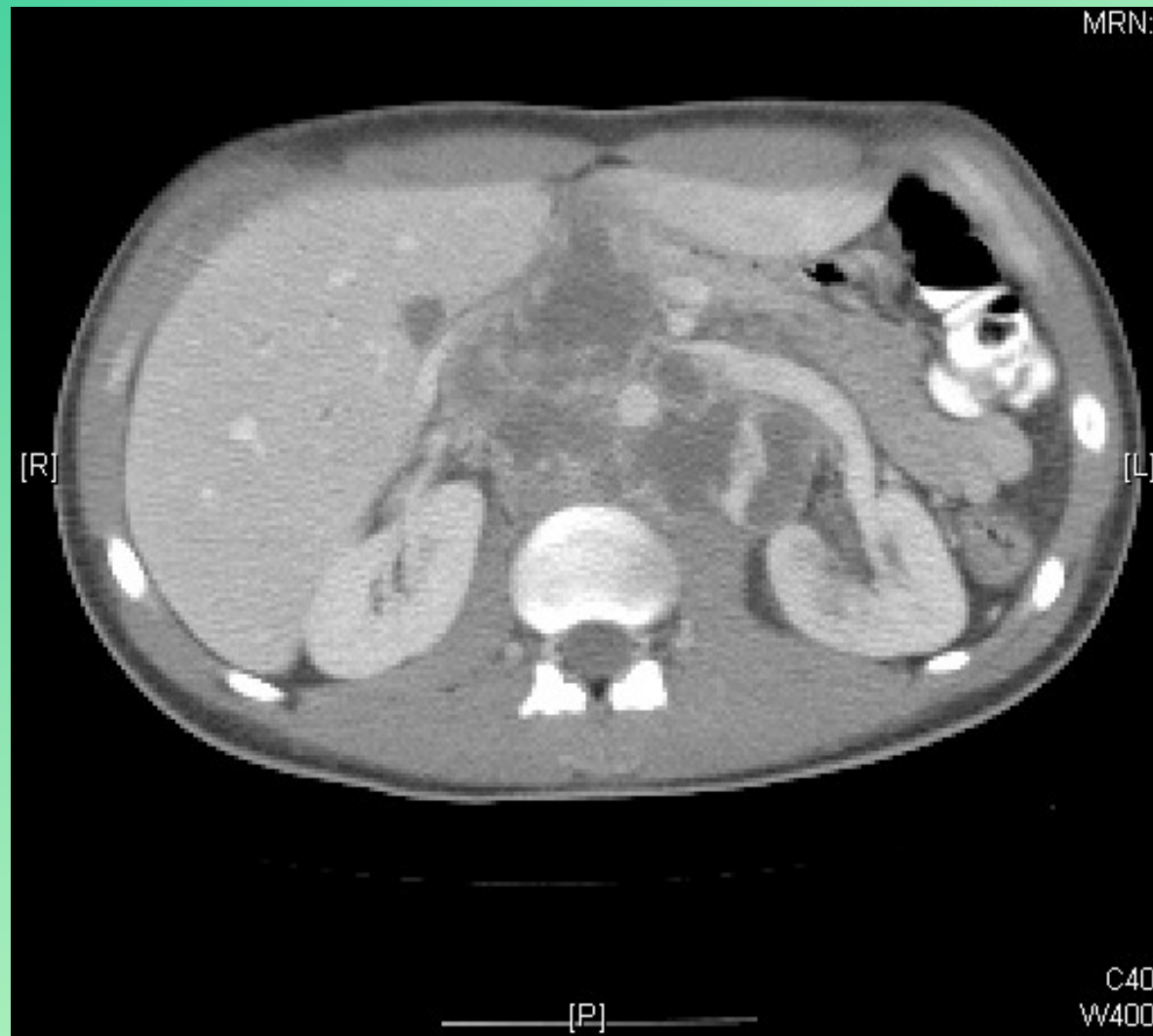
- Initial β -subunit HCG 383,700 mIU/ml
- Initial α -feto-protein 1
- Initial LDH 729 (nl < 190)
- Initial H/H: 9.1/30.2

- β -HCG rose to 840,077 one week after chemotherapy started
- α -feto-protein rose to 12
- LDH gradually but inconsistently fell

Representative CT views



CT Abdomen



Pulmonary Function Studies

- Spirometry normal
- DLCO 84% of predicted
- After 360 units of bleomycin:
- DLCO 35% of predicted
- Bleomycin stopped at this point

Initial Chemotherapy Regimen

- Etoposide 100 mg/m² i.v. daily X 5 q21 d
- Bleomycin 30 U i.v. weekly
- Cisplatin 20 mg/m² i.v. daily X 5 q 21 d
- Toxicity:
 - Severe asthenia, nausea
 - Oral stomatitis
 - Severe anemia requiring transfusion
 - Dramatic fall in DLCO without symptoms

Second Chemo Regimen (Bleomycin replacement)

- Etoposide 75 mg/m² daily X 5 days
- Cisplatin 20 mg/m² daily X 5 days
- Ifosfamide 1200mg/m² daily X 5 days
- Mesna 120 mg/m² daily by continuous infusion X 5 days

- Severe anemia, moderate azotemia, asthenia continues
- Pain much better; gynecomastia better; supraclavicular mass almost gone

Good risk

All of the following:

Testicular or retroperitoneal primary tumors

No nonpulmonary visceral metastases

Serum AFP <1000 ng/mL, beta-hCG <5000 mIU/mL, and LDH <1.5 times upper limit of normal

Intermediate risk

All of the following:

Testicular or retroperitoneal primary tumors

No nonpulmonary visceral metastases

Intermediate level of any of the following:

AFP 1000 to 10,000 ng/mL,

beta-hCG 5000 to 50,000 mIU/mL, or

LDH 1.5 to 10 times upper limit of normal

Poor risk

Any of the following:

Mediastinal primary, or

Nonpulmonary visceral metastases, or

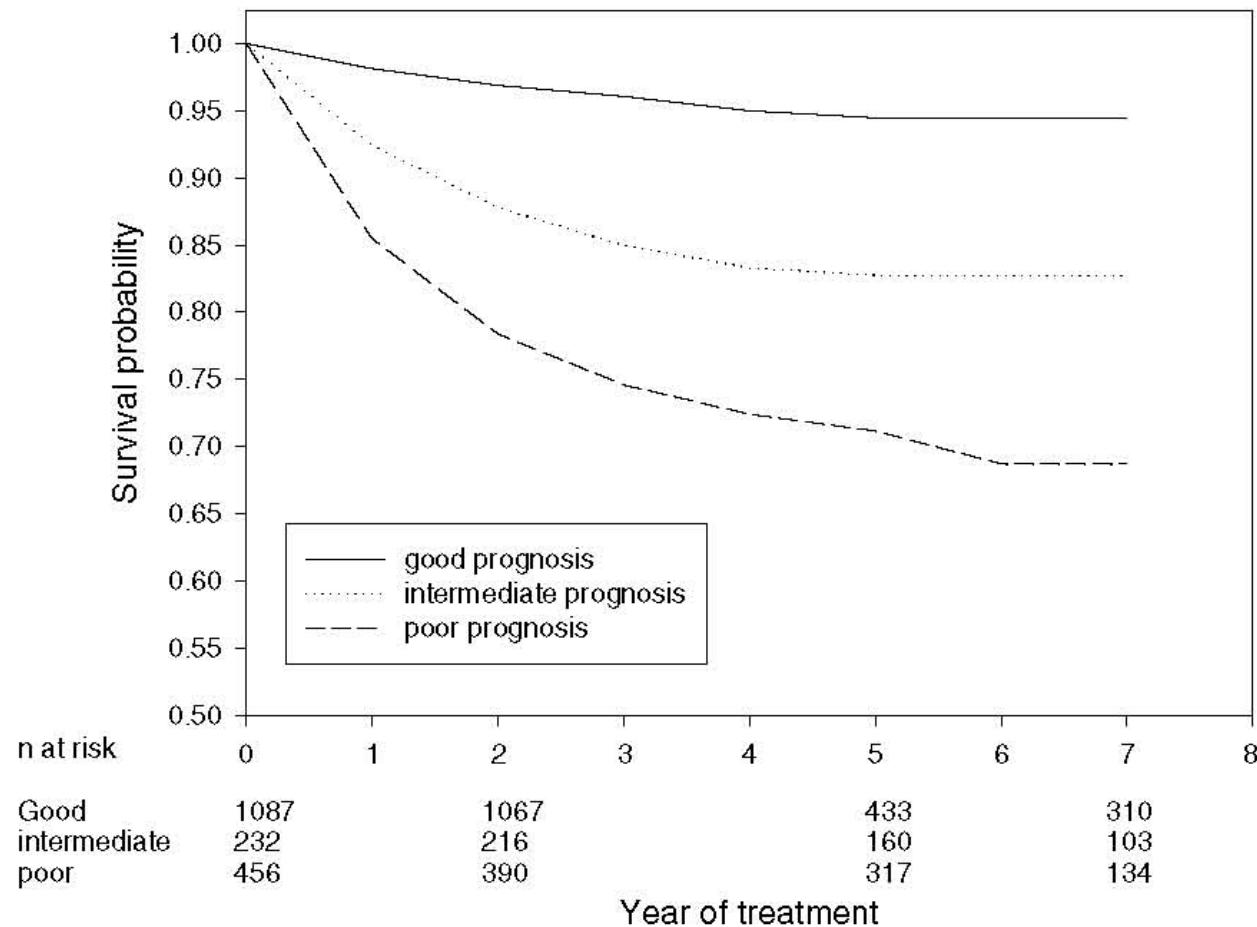
Serum AFP >10,000 ng/mL, or

Serum beta-hCG >50,000 mIU/mL, or

LDH more than 10 times upper limit of normal

Risk Stratification in Testicular Cancer

Prognosis Based on Risk Stratification

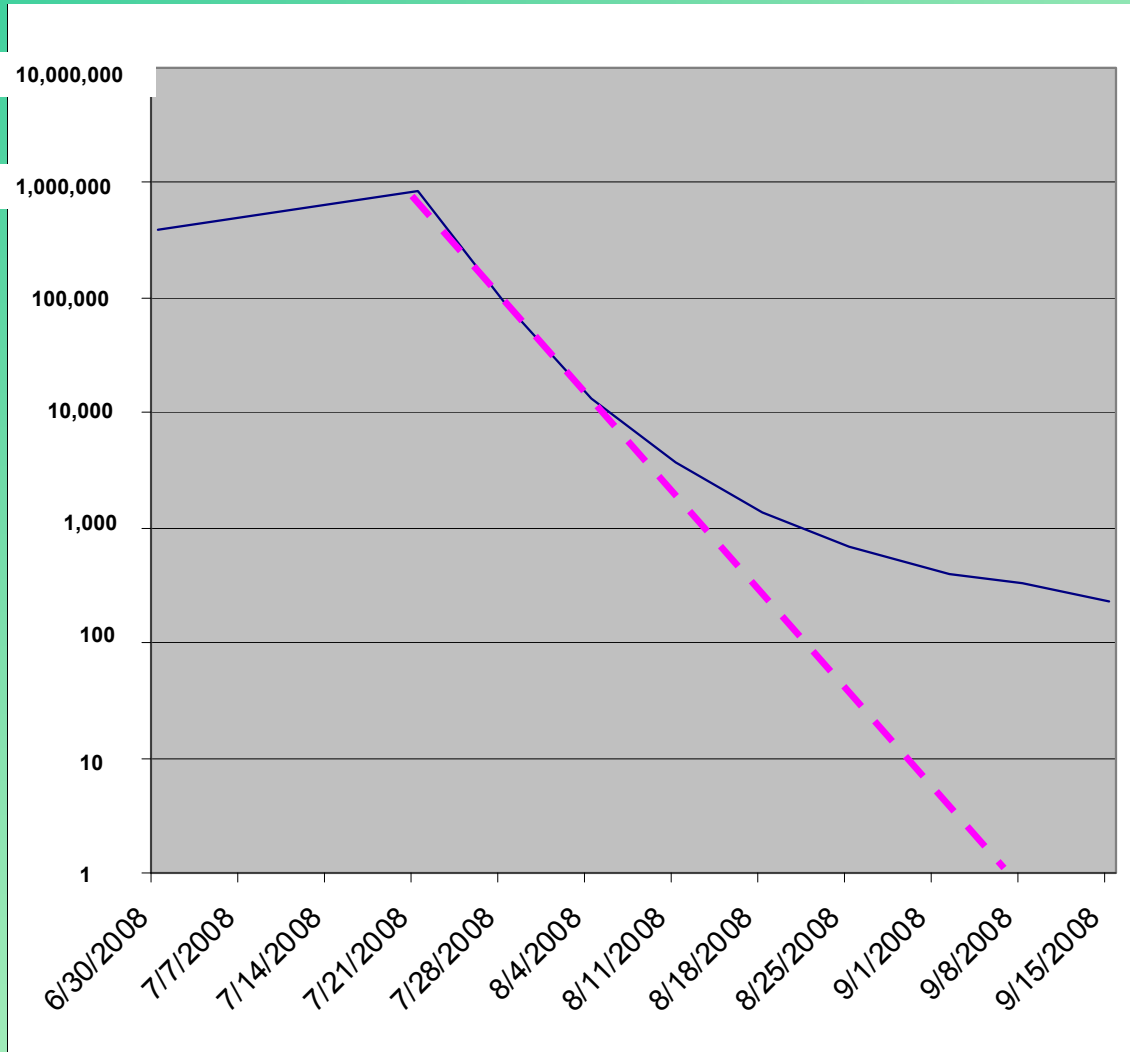


van Dijk *European Journal of Cancer* 42:820, 2006

Results to Date

| Tumor marker analysis | Date | β -HCG |
|-----------------------|--------|--------------|
| | 30-Jun | 383,700 |
| | 21-Jul | 840,077 |
| | 28-Jul | 88,913 |
| | 4-Aug | 13,624 |
| | 11-Aug | 3,732 |
| | 18-Aug | 1,360 |
| | 25-Aug | 684 |
| | 2-Sep | 390 |
| | 8-Sep | 324 |
| | 15-Sep | 234 |

Serial β -HCG Determinations: Log-linear plot



What Happens Next?

- After 4 cycles of chemotherapy, if β -HCG is still elevated but falling, case can be made for observing off treatment
- If β -HCG plateaus above normal or starts to rise again, case can be made to refer immediately for high-dose chemotherapy with stem-cell rescue

What Happens Next, continued

- PET scan planned for after fourth cycle
- Consideration of resection of residual PET positive disease must be considered especially if markers appear to be headed for $>$ zero plateau
- Considering extent of disease at presentation, resection would be large undertaking

What About Initial Treatment Intensification knowing prognosis is less than excellent?

- Several randomized studies attempting this have not shown improved outcome
- Therefore hard to justify on ad hoc $n=1$ basis, but still has intuitive appeal...

Conclusion

- Diagnosis of testicular cancer still not always straightforward
- Normally highly curable disease is less so when initial tumor burden is huge
- When to pull the plug on initial intensive therapy and go for broke is not always clear
- Follow-up for those interested....