How to overcome Challenges in the Management of Elusive Genitourinary Tuberculosis

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Overview

* In 1937- Wildbolz - Genitourinary tuberculosis (GUTB)
* Extremely elusiveness.
* WHO - nearly one third of the world's population - Tuberculosis(TB)
- 9.4 millions of new active cases - 2 millions die (WHO, 2011)
- > 90% of these cases and deaths - developing world
- growing concern from many countries due to Multidrug Resistance TB and increasing number of AIDS cases (WHO, Geneva, 2003)

- **Southeast Asia - 3 million new cases and**
- **700,000 deaths -every year (WHO,2008)**
- **Bangladesh, India, Indonesia, Myanmar and Thailand account for 95% of these deaths(WHO, 2001).**
- ***GUTB has been inconsistently reported to account for 20% to 73% of EPTB (Chattopadhyay, 1997).***
- **GUTB - Second most common EPTB (Carl,1997)**
- ***considered as a severe form of extra-pulmonary tuberculosis (WHO, Geneva , 2003).***

Epidemiology

The female/male ratio was 0.4 .

High rates of TB are associated with

- **socioeconomic crisis,**
- **weaknesses in health systems,**
- **epidemics of HIV and multidrug-resistant TB,**
- **poor interventions to control TB among vulnerable populations.**

Diagnosis

- Diagnosis - often difficult – History
- H/O pulmonary TB – latency - 10 to 15 yrs (Warren,2002)
- Common age 15-60 , female : Male 2:5

- **Varied Presentations :**
- 1.Recurrent UTI, sterile pyuria with or without haematuria (Wise,2003)
- 2.Irritative voiding symptoms (Wise,2003)

- 3.Renal (hydronephrosis / pyonephrosis) or epididymal mass(Gupta, 2004)
- 4.An incidental diagnosis in a known case of tuberculosis
- 5.Infertility and pelvic inflammatory disease (Sole-Balcells, 1997)
- 6.Renal Failure (chronic kidney disease due to parenchymal infection and obstructive uropathy) (Clinman, 1982)
- 7. Miscellaneous : flank pain with acute pyelonephritis, non-healing wounds, sinuses, or fistula or vesico-vaginal fistula and haemospermia (balasubramanian, 2000), (Clinman,1982), (Wise,2003), (Gupta,2004)

Laboratory findings

* **1. AFB – smear - Sensitivity of 22% to 81% (Warren, 2002) (EAU Guideline,2011)**
* **2. AFB culture -Accuracy - 26 to 42% - (3 to 5 consecutive) (EAU Guideline,2011).**
* ***- Although urine is sterile after chemotherapy , about 50% of histologic preparations of kidney tissues still show active Tuberculosis (level 3)***

* **3. PCR - is relatively insensitive in clinical specimens**

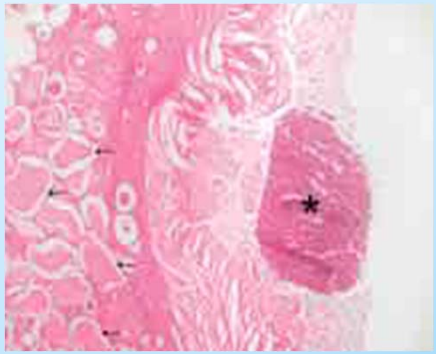
  unless large numbers of organisms are present

  (Lenk,2001)(Hemal,2000)(Moussa,2000)

* **Accuracy – 72% - 92%**

* **4. Histology**

- **Photomicrograph showing amorphous necrotic area with calcification.**
- **Renal parenchyma shows dilated atrophic tissues (H&E x100)**



* **Accuracy – between 34% to 46% (Warren,2003)**

Imaging

KUB & IVU

reveal diagnostic features in majority - 63% (Christensen,1974).

Good uro-radiological experience is essential

KUB - classic lobar pattern of calcification: end-stage renal TB

IVU-Rt kidney - cortical ulceration (early)
Lt kidney - lobar caseation in upper lobe

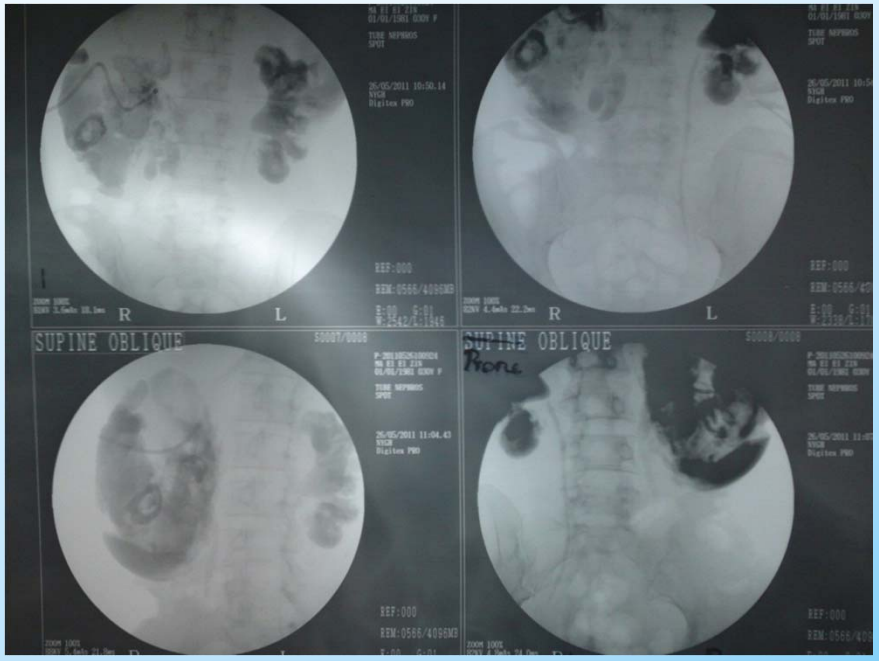
IVU revealing Rt upper infundibular and calyceal strictures with cortical scarring

- Most common site of tuberculous stricture - UVJ , Less in PUJ , sometimes the whole length
- Unilateral –more common (3:2)

Ureteral stricture - 50% - with renal involvement (EAUGuideline,2011))

Retrograde pyelography **Antegrade pyelography**

- **- urine sample - from the renal pelvis (Warren, 2002)**



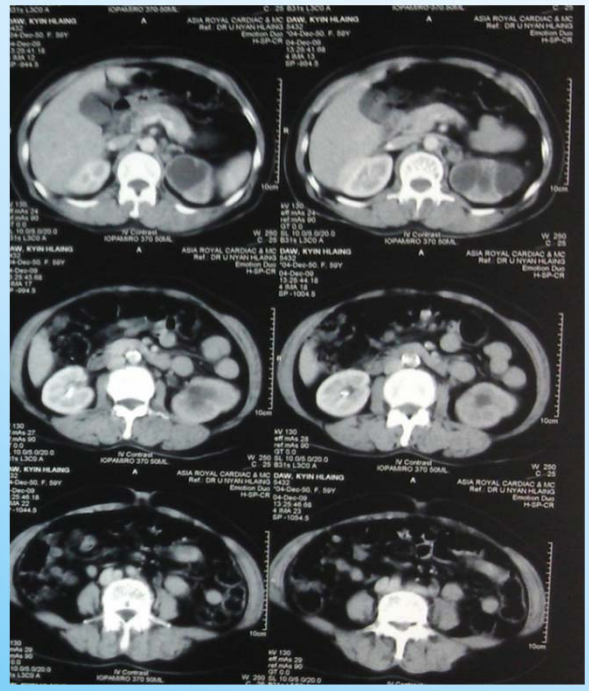
TB of male genital tract

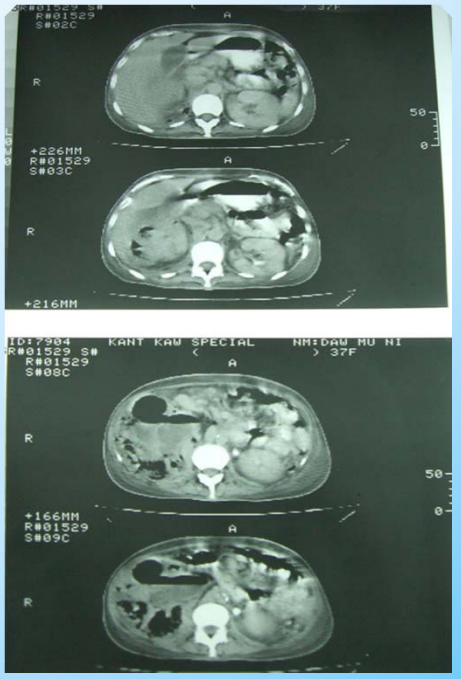
HSG -TB of the fallopian tubes

Ultrasonography

Computed Tomography

- Calyceal abnormalities, Hydronephrosis, pyonephrosis, ureteric and bladder abnormalities
- differential diagnosis of renal parenchymal masses and scarring(Lenk,2001)
- benefits of delineating the structures nearby





- **Cystoscopy - usually not done for diagnosis**
- **Bladder biopsy - contraindicated in the presence of acute tuberculous cystitis –**
- **Indications for ureterorenoscopy - rare. (Warren, 2002)**

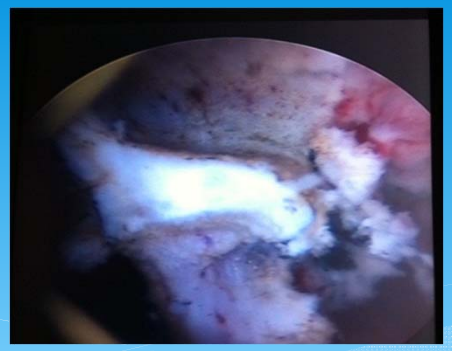
Direct culture of urine from the renal pelvis may have more sensitivity than culture of voided urine - in difficult to diagnosis cases (Chan,1998)

Tuberculosis of the prostate

Clinically, impossible to diagnose

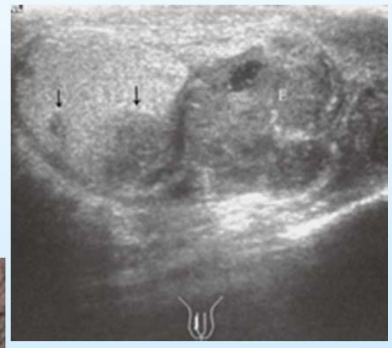
DRE - nodularity

Diagnosis - histology



Tuberculous epididymoorchitis

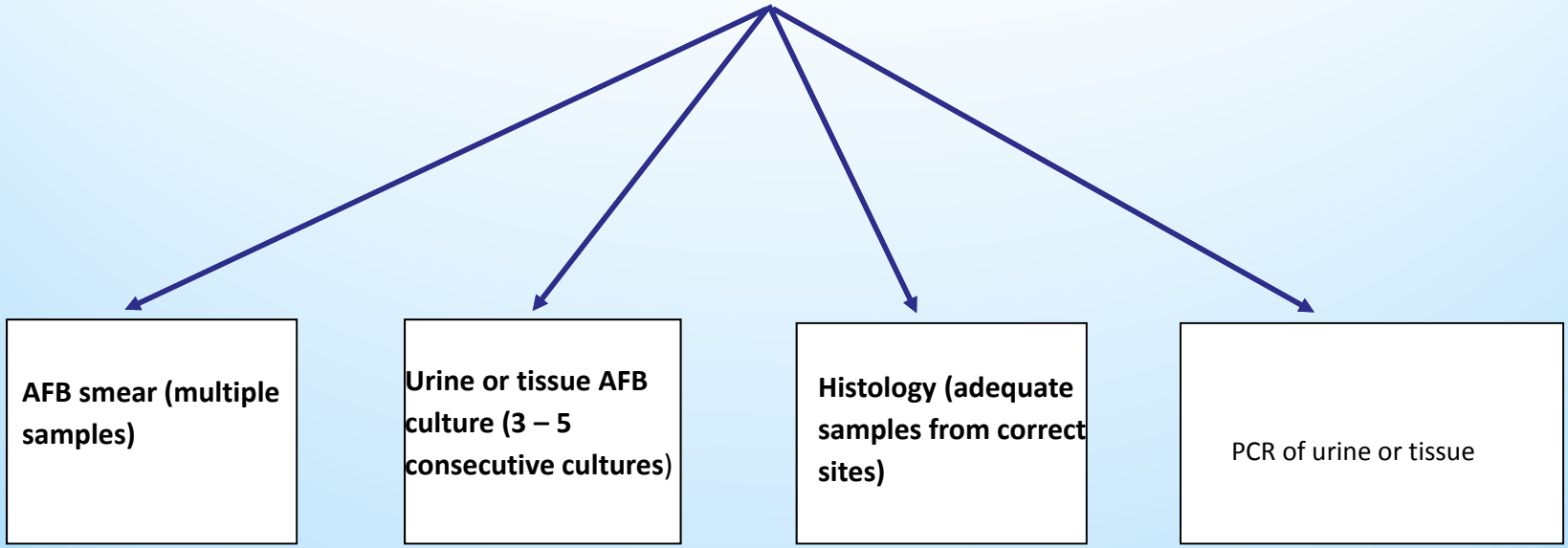
- Nodular enlargement of tail of epididymis with heterogeneous echogenicity
- Testes shows hypoechoeic areas



Penile tuberculosis

50%- 70% of men with genital tuberculosis have radiological abnormalities of urinary tract(level4)(grade B)

Diagnostic Algorithm (EAU Guideline)



Challenging issues in endemic areas

1. **AFB smear, AFB culture and Histology- Not conclusive enough in every case**
2. **PCR - not available in some centers. Accuracy - not high enough.**

" In Endemic areas , if there is high degree of clinical suspicion"

1. the patient must not be discharged from Follow-up easily

2. the tests need to be repeated as required

3. periodic assessments

Studies in the endemic regions

1. **when there is high degree of clinical suspicion,**
2. **together with suggestive IVU/CT findings and**
3. **old Koch's lung in CXR and/or some other laboratory findings like**

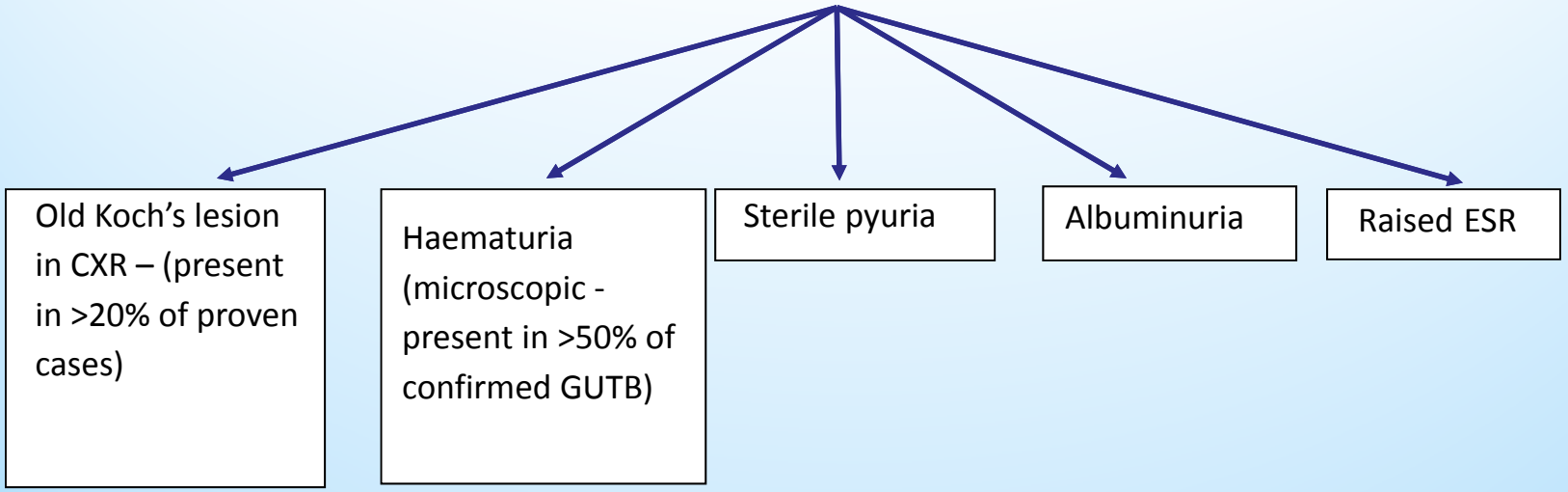
sterile pyuria , haematuria , proteinuria and/or raised ESR ,

the tentative diagnosis should be made and earlier treatment should be started

(Figuirido, 2008) (Lwin T.,2008) (Lu P.,2006) (Chowdhury,1996) (Teklu B.,1963)

Tentative Diagnosis

IVU/CT findings suggestive of TB +
2 of the followings;



Treatment Objectives:

- To stabilize the disease
- To prevent the complications
- To treat the complications to preserve renal function

Medical Treatment

- WHO - an initial 2-month intensive phase
- followed by a 4-month continuation phase with only two drugs
- Only in complicated cases (recurrences of tuberculosis, immunosuppression and HIV/AIDS) - 9 to 12 month therapy is necessary

Surgical Treatment

- **Overall incidence of surgical treatment ->50%**
- **Should be carried out in the first 2 months of intensive chemotherapy (Gow,1979)**
- **Early ureteral stenting or PCN can increase the chance of reconstruction(Shin,2002)**

Endoscopic surgical procedures

1. Optical urethrotomy
2. Bladder neck incision
3. Ureteric dilatation
4. Ureterscopic ureterotomy
5. Endopyelotomy
6. TURP

Surgical procedures: Reconstructive

1.Pyeloplasty (Laparoscopic – v. occasionally)

2. Ureterocalycostomy

3. Ileal interposition

   (a)Ileopyelostomy and Ileocystostomy

   (b)Ileocalycostomy and Ileocystostomy

4. Ureteric reimplantation

5. Boari flap

6. Cecocystoplasty

7. Ileocecocystoplasty

8. Ileopyelostomy or ileocalycostomy

& Caecocystoplasty

9. Orthotopic bladder

10. Urethroplasty

Surgical procedures: Ablative

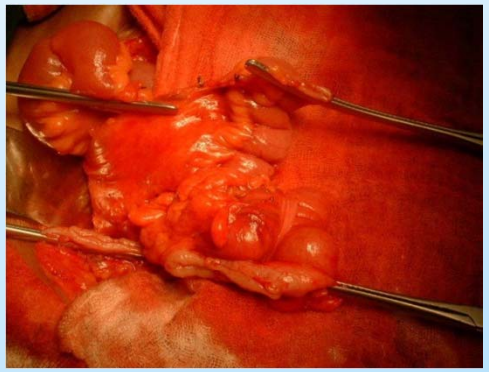
1. Nephrectomy (laparoscopic- occass:)

2. Nephroureterectomy (lap-occas:)

3. Partial nephrectomy (lap-rarely)

4. Nephrectomy and fistulectomy

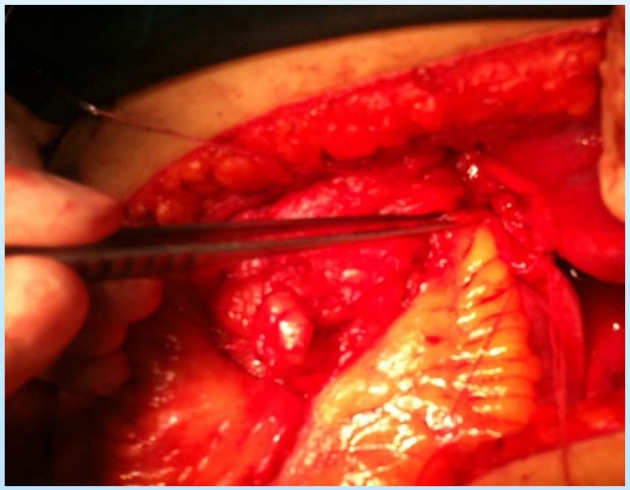
5. Epididymectomy/epididymoorchidectomy

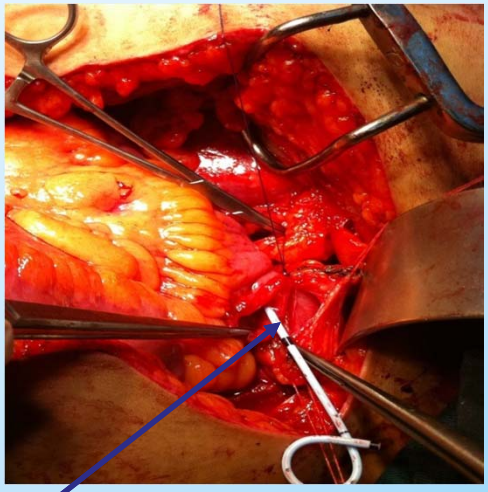


Calyco-ileostomy

- fibrosis in the region of PUJ is too extensive

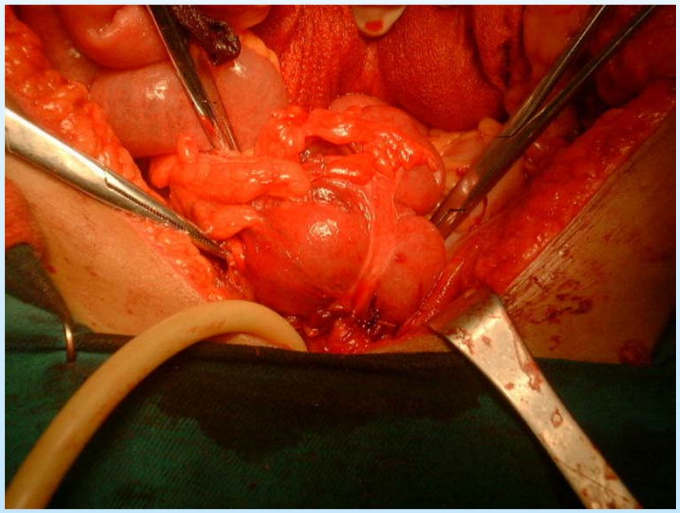
and impossible to have a decent pelvis-





Bladder Augmentation

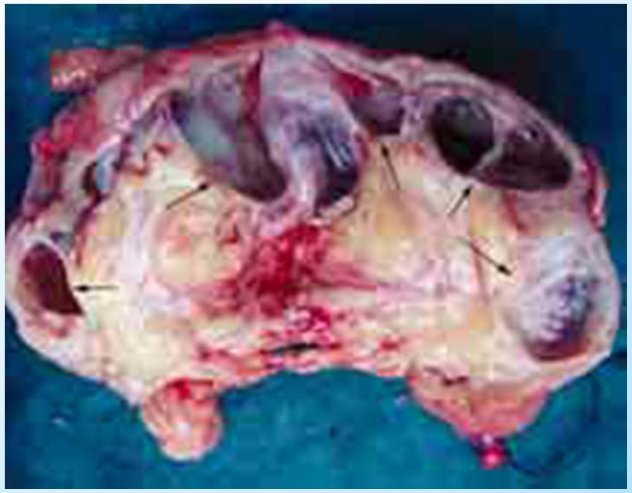
(Caecocystoplasty or ileocaecocystoplasty)



- **Nephrectomy - nonfunctioning grossly destroyed kidney**

  Extensive disease involving the whole kidney with H'T and UPJ obstruction

  Coexisting renal carcinoma



<u>Epididymectomy</u>

- caseating abscess -not responding to chemotherapy

- firm swelling that has remained unchanged

Conclusion

1. Urologists should always consider GUTB – long-standing without obvious cause (level 4) (EAU Guideline,2011).
2. Definitive diagnosis - positive test in AFB smear, Culture , Histology and/or in PCR of urine or tissue.
3. Tentative diagnosis may be made - in ENDEMIC areas where there is strong clinical suspicion and circumstantial evidences
4. Initial antituberculous treatment for 4-8 weeks - before performing definitive surgery except emergency JJ stent insertion or PCNT.

Take Home messages for Myanmar

If there is high degree of clinical suspicion

- **(a)the patient must not be discharged from Follow-up easily**
- **(b)the tests and investigations need to be repeated as required**
- **(c)periodic assessments**
- **(d)timely referral**


THANK YOU