Author's response to reviews

Title: Successful transureteropyeloneostomy after heminephrectomy of a double-hydronephrotic horse shoe kidney

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Version: 4 Date: 23 March 2008

Author's response to reviews: see over
Cover letter

Dear reviewers

The authors appreciate the constructive evaluation of the initial manuscript. In addition we thank for the rapid feedback.

The paper has now been extensively revised. All concerns have been deeply reconsidered and the correlative modifications are included in the text. Additionally every concern is answered individually.

As figures were repeatedly critizised and an illustration of the surgery was required by the reviewers, we now have replaced the initial, inconsistent figures by illustrations of the performed procedure, pre- and post-operative settings.

H. Gerullis

Reviewer 1
Gralf gp Popken

Comments to authors:
This is an interesting case report handling urogenital congenital malformation as horse shoe kidney with urinary transport problems. This disease often takes individual strategies as described. This article is interesting for every urologist handling such patients.

1) Why this kind of operation had to be done:

Because of the patients non-compliance with medical recommendations, our aim was to find a definite procedure in order to avoid the significant risks of long time ureteral stenting. We specifically aimed for a solution which required as little as possible exigence for cooperation from the patient.

Thus we conducted our surgical approach with three main intentions:

a) to remove the nonfunctional moiety of the horse shoe kidney in order to diminish the risk of relapsing infections of the pelvis and to avoid recurrent flank pain.

b) to construct an optimized drainage system of the pelvis from the left moiety of the kidney. As the right ureter did not show any sign of stricture (RPG) the described surgical technique allowed us to use it for drainage of the left pelvis. Only performing Anderson Hynes technique on the left moiety would not have brought sufficient benefit to the patient because of the additional left multifocal ureteral strictures.

c) as the patient is very young our idea was to recycle as many functional structures as possible and to preserve the highest number of therapeutic/surgical options in case of possible problems in future for the patient.

2. What steps of operative corrections had to be done e.g. illustrations

Illustrations, describing the performed procedure, pre- and post-operative settings are provided (see figures) and should replace the initially uploaded inconsistent picture files.
The authors present a case report of a patient with horseshoe kidney with bilateral hydronephrosis with one non-functioning moiety. This case was managed with non-functional side nephrectomy with transureteropyelostomy to salvage other side.

General comments.

1) Retrograde ureteropyelography on both sides revealed hydronephrosis of the right part with abrogated calix structures and a sufficiently treated left ureter with distal stenosis (Figure 2).

The sentence was modified, inconsistent figures were replaced by illustrations describing the performed procedure and the pre- and postoperative settings.

2) The terms in bold and italic are not clear. Figure 2 not corresponding. If I interpret this as solitary left lower ureteric stricture, then why was ureteroneocystostomy not considered? (though, transureteropyelostomy may be an acceptable option)

As the right ureter did not show any sign of stricture (RPG) the described surgical technique allowed us to use it for drainage of the left pelvis without performing a ureteroneocystostomy. Definitely ureteroneocystostomy would have been an option, but this would have included partial distal resection of the left ureter because of the multiple strictures.

However we decided to use the preformed orthotopic drainage system of the right urinary tract in order to drain the left pelvis. As the patient is very young our plan was to recycle as many functional structures as possible and to preserve the highest number of therapeutic/surgical options in case of possible problems in future for the patient. In addition as vesicoureteral reflux could be excluded preoperatively the orthotopic right ureter could be used without fashioning an artificial non-refluxive mechanism.

The mentioned ureteroneocystostomy could still be performed in this patient in the future if indicated.

Initial indication to the performed surgery was to resect the non-functioning moiety of the horseshoe kidney in order to prevent chronic infections and avoid recurrent flank pain. However, as mentioned before, the aim was to preserve and apply the remaining functional tissue after resection of the right moiety.

3) What was the functional evidence of obstruction (nuclear scan) of the functioning side.

A Tc$^{99m}$ MAG3 scintigraphic examination revealed a 0% (right) to 100% (left) functional repartition. As RPG on the right side revealed signs of an old chronic hydronephrosis we interpreted the suspicious pelvi-ureteric junction obstruction as the most likely reason for the functional failure. The provided renogram does not definitely clarify obstruction on the functioning left moiety of the kidney. Although we think that this did not impact the purpose of the accomplished surgery, once the patient had to be operated. In the presented case obstruction of the left moiety was not the only determinative criterion for the conducted surgery.
- Did the patient pain improve after initial stenting?

The initial mild flank pain occurred on the right side. It did not improve after initial stenting during RGP. In contrast, after removal of the right moiety of the horseshoe kidney the patient did not complain of flank pain any more.

- RGP is an anatomical study (with subjective functional component) and should be interpreted with caution unless there is high grade obstruction.

We totally agree that RGP is an anatomical study, however two anatomically relevant high-grade strictures of the distal left ureter were observed performing initial RGP. We interpreted these alterations as probably responsible for hydronephrosis. When we had seen the patient for the first time he was already treated with an ureteral stent on the left and functionally remaining part of the horseshoe kidney. As far as we could figure out from the little aquirable anamnestic information, hydronephrosis with consecutive functional deficit of the right moiety had existed since horseshoe kidney was first diagnosed. Apparently prior treatment had never exceeded any other approach than ureteral stenting of the functionally remaining left moiety. As this patient showed very little compliance with recommendations for care and follow up our aim was to find a definite procedure in order to avoid long time ureteral stenting and in order to find the best approach which required only minimal cooperation from the patient.

4) Authors have mentioned that prolonged (indefinite) stenting is an acceptable method for treating multiple ureteric strictures. This conveys a wrong message because in a patient without high risk of anesthesia, it is always preferable to perform a definitive procedure and NOT prolonged stenting.

We affirm that the critizised sentence was unclear. We thank for the annotation. As ureteral obstruction is a common cause of urologic morbidity which can cause pain, infection and loss of renal function a quick and effective treatment is required. In those cases initial ureteral stenting may be an adequate primary therapy. However long term treatment with indwelling ureteral stents should be avoided whenever possible. It can be a useful and reliable therapeutic approach in patients with advanced tumor diseases and consecutive ureteral obstruction where no definitive procedure is possible. Several complications such as reflux, incruration, secondary strictures are described. Our patient is a credible example of the subjective and objective superiority of the definitive surgical approach in order to avoid prolonged ureteral stenting.

5) The discussion is very poor: nearly half of it is just a repetition of methods. All references belong to description of horseshoe kidney. No discussion on treatment options for ureteric strictures. No discussion on available literature on transureteroureterostomy and transureteropyeloneostomy (the accepted term is transureteropyelostomy.

The above mentioned critic by the reviewer is absolutely right. Discussion is now correlatively modified and includes the following additional references:


10. Ehrlich R, Skinner D. **Complications of transureteroureterostomy.** J Urol 1975; **113**: 467-473

**6) Conclusion is vague and scientifically incorrect. It should be based on the authors treatment approach. As mentioned earlier prolonged stenting is NOT an acceptable modality in an anesthetically good-risk patient.**

**Conclusion was modified in sense of comments on concern 4).**

**7) English needs to be extensively revised and sentences need to be reframed. These become incomprehensible at various places (e.g. Retrograde Ureteropyelography with abrogated calix structures and a sufficiently treated left ureter with distal stenosis. Though assuring the patient independence from continuous ureteral stenting. Normally, in cases of heminephrectomy supply of DJ-catheter is necessary to guarantee urine drainage without obstructioning. This can be connected with short-time or even long-time aftercare controlling hydronephrosis and ureteral stenting. In a few cases only, a life-long renunciation of ureteral catheter can be realised without cases of recurrence taking the risk of damaging the residual kidney and consecutively its function, etc.)**

**Sentences were changed and reframed. English has been revised and the help of a native speaker was utilized.**
Reviewer 3
Elijah O. Kehinde

Comments to authors:

1) There are many grammatical mistakes in the manuscript. I advise the authors to solicit the help of a professional English speaker/writer. Examples include:

English has been revised and the help of a native speaker was utilized.

Background
Line 5, page 2, uretero-pelvic junction obstruction (not syndrome).

Sentence was modified

Line 9, page 2: Thus, not though

Sentence was modified

Line 15, page 3: pelvis, not pyelon

Sentence was modified

2) The paper describes the transposition of a ureter to the contralateral side to improve the drainage of a hydronephrotic horse shoe kidney moiety. Most horse shoe kidneys have some degree of hydronephrosis. In the absence of significant pelvi-ureteric junction [PUJ] obstruction as confirmed by diuretic renogram, there is no need for any surgical intervention. If there is a PUJ obstruction, and the ipsilateral renal unit is functioning, then treatment options include pyeloplasty etc.

Our patient had multiple distal ureteral strictures on the left side. As the right ureter did not show any sign of stricture (RPG) and vesicoureteral reflux could be excluded the described surgical technique allowed us to use it for drainage of the left pelvis without performing ureteroneocystostomy. However we decided to use the preformed drainage system of the right urinary tract in order to drain the left pelvis. As the patient is very young our idea was to recycle as many functional structures as possible and to preserve the highest number of therapeutic/surgical options in case of possible problems in future for the patient. The mentioned pyeloplasty can still be performed in that patient whenever indicated. Only performing Anderson Hynes technique on the left moiety would not have brought sufficient benefit to the patient because of the additional left multiple ureteral strictures. As this patient was non-compliant with recommendations for care and follow-up our aim was to find a definite procedure in order to avoid long time ureteral stenting and in order to find the best approach which particularly required only a minimal need for cooperation from the patient.

3) In the case report presented, there is insufficient data provided to indicate that the hydronephrotic left kidney was obstructed. A distinction must always be made between an obstructed hydronephrotic kidney and a non-obstructed
hydronephrotic kidney. On the renogram provided (Fig 1), there were no features suggestive of obstruction of the left renal moiety. Furthermore on figure 3, even with 2 ‘J’ stents in the left renal moiety, the kidney still showed residual hydronephrosis!

Initial indication to the performed surgery was to resect the non-functioning moiety of the horse shoe kidney in order to prevent chronic infections and avoid recurrent flank pain. The contralateral left moiety was hydronephrotic and treated with an indwelling ureteral stent. However, as mentioned before, the aim was to preserve and apply the remaining functional tissue after resection of the right moiety. We agree with the reviewer that the provided renogram does not clarify obstruction on the left side. A distinction between an obstructed hydronephrotic kidney and a non-obstructed hydronephrotic kidney is definitely mandatory in case of an elective surgery. Although we think that this did not impact the purpose of the accomplished surgery, as mentioned above, once the patient had to be operated. In the presented case obstruction of the left moiety was not the only determinative criterion for the conducted surgery.

4) If this patient has an obstructed left renal unit, an alternative treatment is some form of ipsilateral pyeloplasty. To minimise or reduce "dead space", the Anderson Hynes type of pyeloplasty would have been ideal for this patient.

We agree with the reviewer that Anderson Hynes type of pyeloplasty would have been a treatment option for this patient but a ureteroneocystostomy would have been mandatory additionally due to the multiple distant ureteral strictures. At least two anastomoses would have been created, including the risk of anastomotic strictures/insufficiency etc. “Dead space” would have been minimized surely, otherwise we considered preservation of existing orthotopic tissue in a young patient beneficial in order to minimize “dead functional material”.

Our idea was to recycle as many functional structures as possible and to preserve the highest number of therapeutic/surgical options in case of possible problems in future for the patient. Particularly in a still altered left ureter (after Anderson Hynes) with multiple distal strictures the risk of functional alteration would have persisted. Thus we used the intact, orthotopically inserted right ureter and built only one new anastomosis.

5) Other Corrections Required
Figure 2 was mentioned before Figure 1 on page 3.

As figures were repeatedly critizised and an illustration of the surgery was required by the reviewers, we now have replaced the initial, inconsistent figures by illustrations of the performed procedure, pre- and post-operative settings.

6) Conclusion
Some statements in the conclusion are not correct, for example sentence No.2.

Conclusion was adapted. We thank for the annotation. As ureteral obstruction is a common cause of urologic morbidity which can cause pain, infection and loss of renal function a quick and effective treatment is required. Long time treatment with indwelling ureteral stents should be avoided whenever possible. Initial ureteral stenting may be an adequate primary therapy. It can be a useful and reliable therapeutic approach in patients with advanced tumor diseases and consecutive ureteral obstruction where no definitive procedure is possible. Our patient is a credible example of the
subjective and objective superiority of the definitive surgical approach in order to avoid prolonged ureteral stenting.

References
Reference number 4 is incomplete. Part of the title of the reference is missing.

Reference was completed (see references)

Figures
Figure 1 is mostly illegible

See comment on concern 5)