Cautionary Tales
in Organ Donation and Transplantation

NHS Blood and Transplant

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Introduction

The decision whether to report an incident should not just be a question of 'did any one do anything wrong?' The focus of Clinical Governance is about continuous improvement of patient services, patient care and what can be learnt from a situation; and this learning can still sometimes occur when everything is done right or done for the right reasons.

Everyone involved in donation and transplantation comes to work to do their best for donor families and transplant recipients, but there are occassions when, despite everyones best efforts and clear rational decsion making, things do not turn out as hoped. Donation and transplantation is not an exact science, far from it; SNODs often work in unfamiliar hospitals gaining information from individualised electronic systems, recipient teams and transplant surgeons have to make time critical decisions on the sometimes limited information available to them, and all often in the middle of the night.

Cautionary Tales usually includes a number of cases with the wider learning gleaned. In this edition however it has been decided to include an extended report of a difficult case written by those involved. This case provides the details of a situation where histopathological examination of renal transplant tissue showed rare findings which had major consequences.

A number of cases, including the one below, have highlighted that in potential donors with a complex medical history the definitive histology of any tissue can be difficult. Involvement of more than one opinion is often an option to consider if time constraints allow.

We would like to thank all those involved for the time they have taken to ensure the case below is shared wider.

Best intentions, unexpected outcome

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In the early hours of the morning in autumn 2016 a renal organ donor offer was made and accepted. A young donor in their 20's had suffered an intracranial bleed. This was on a background that they had earlier in 2016 been an organ recipient themselves; a liver transplant for end stage liver disease secondary to Budd Chiari syndrome. It had been noted that their explanted cirrhotic liver had shown an incidental 1 cm hepatocellular carcinoma with no vascular invasion. On discussion it was felt that this had a very low possibility of transmission to potential recipients and so it was reasonable for them to be an organ donor with the caveat that the recipients had to be specifically warned of the low possibility of the transmission of carcinoma.

Two recipients were identified, a male, patient A, who was in his 60's with polycystic kidney disease who had recently been reinstated on the list following a suspension (cardiac issues) and a female, patient B, also in her 60's with nephrocalcinosis, diabetes and glomerulonephritis.

In order to reduce cold ischaemic time two separate implant surgeons were involved both of whom consented their patients. Both patients felt that the risk of cancer transmission was outweighed by the benefit of renal transplantation.

The surgeon performing patient B's implant prepped the kidney in theatre; it was a healthy kidney with single artery, vein and ureter. The surrounding tissue was macroscopically normal but nevertheless, because of the donor history, some peri-hilar tissue was sent to histopathology and labelled as "kidney transplant". The details of the recipient, patient B, whose transplant occurred later in a separate theatre, were put on the histopathology form deliberately as the identifier (as well as on the fluid from the perfusion fluid around the kidney which was sent to microbiology).

Both transplants proceeded, and both patient A and B made a good recovery with early recovery of renal function and reassuring renal duplex scans. Patient A suffered from a minor cardiac event which he made an excellent recovery from and was discharged home whilst patient B had her recovery complicated by minor gastrointestinal upset which meant she remained on the ward.

The tissue taken from the renal donor was processed in histopathology. Initial microscopy showed no abnormal features, it was noted that ectopic adrenal tissue was evident in the sample and so further immunochemical stains were performed to prove that these were benign adrenal tissue and not malignant. These markers came back confirming that the adrenal tissue was benign, however there was abnormal uptake of the markers in the lymph node's present in the tissue suggestive of diffuse nodal carcinoma.

The surgeon who implanted patient B's kidney contacted NHSBT to inform them that a potential transmission of cancerous tissue had occurred in two patients. At this point patient B was still an inpatient but patient A was at home and was asked to attend hospital the following morning. NHSBT were informed that the diagnosis was not yet certain but that discussions were ongoing between histopathologists and we would act as soon as we had further information and keep them aware.

Discussion took place between a number of histopathology consultants later that day and all considered that the findings in the tissue taken from the renal donor pre-implant were a malignant infiltrate in the lymph nodes. A meeting between patient B's surgeon, her nephrologist and histopathology consultant took place. It was uncertain if the hepatocellular carcinoma was the source of the carcinoma in the implanted kidney's lymph nodes but it was a carcinoma. The surgeon and nephrologist then went to discuss the situation with patient B. All modalities of managing this situation were discussed; leaving the kidney as it was and continuing with immunosuppression but closely monitoring the kidney and body for development of metastatic carcinoma (with a decision of immunosuppression cessation and or nephrectomy being made at a later date) or stopping immunosuppression and taking the kidney out as soon as possible. Patient B wished to proceed with nephrectomy.

She was warned when consenting that it was possible that her removed kidney might not show evidence of the identified carcinoma cells but that both surgeon and nephrologist thought that it would contain some and that they would cause disease at some stage in the future.

The following morning patient A arrived in hospital with his wife and had a similar discussion with his surgeon and named nephrologist. His situation was complicated by his recent suspension for cardiac issues and minor perioperative cardiac event, which meant this, would likely be his only transplant and that further re operation carried significantly higher risks. It was decided to take a conservative non-surgical management path whilst continuing on immunosuppression and surveillance.

Plans were made to proceed with patient B's nephrectomy with further discussions taken place between surgeon and histopathologist prior to the patient being induced in theatre. A total

nephrectomy was performed with patch reconstruction of the external iliac artery. The kidney was sent to histopathology.

Later that day some of the images were shared with the pathology department at Kings College Hospital (who also reviewed slides from the hepatocellular carcinoma taken from the donor's initial cirrhotic liver earlier that year). It was felt that the morphology of the atypical cells in the nodes was different from the hepatocellular carcinoma. The possibility that the cells within the lymph node were benign mesothelial cells was suggested. Further tests supported this hypothesis. This was extremely rare but had been described in case reports (ref 1, 2). Mesothelioma was usually much more atypical than these cells appeared so this was probably deposition of benign mesothelial cells. The tissue was then sent to The Christie Pathology Service, Manchester for a third opinion.

Patient A was contacted rapidly to explain of further uncertainties. Patient B was spoken to on the ward to explain that there were further uncertainties and that a third centre's opinion was being sought regarding the possibility of the kidney not being neoplastic after all and that her functioning kidney transplant had been removed in error.

NHSBT were kept informed regarding the findings and that a third opinion was awaited.

The third opinion was that the nodes were positive for benign mesothelial cells. The donor had suffered from end stage liver failure prior to their liver transplant. This would have been sufficient to allow abnormal circulation of mesothelial cells to the retroperitoneum.

Patient B met with her surgeon and nephrology consultant to discuss all the above. She understood that several centres were involved in the histopathological diagnosis and that the number of such cases published was small. She was very keen that her story be widely published in the transplant community in order to raise awareness of this potential difficulty and reduce the chance of it happening in the future.

Learning point

- Benign hyperplastic mesothelial cells can mimic a malignant process.
- Rapid involvement of NHSBT aided the process.
- Early discussion with both patients at all stages was helpful despite an adverse outcome for patient B.

References

- Argani P, Rosai J. Hyperplastic mesothelial cells in lymph nodes: report of six cases of a benign process that can stimulate metastatic involvement by mesothelioma or carcinoma. Hum Pathol. 1998 Apr;29(4):339-46.
- Peng L, Shen Q, Liu X, Wang J, Shi S, Yu B, Zhou X. Diffuse hyperplastic mesothelial cells in multiple lymph nodes: case report with review of the literature. Int J Clin Exp Pathol. 2013 Apr15;6(5):926-31.

As always, please ensure that any incident is reported via the following link to help ensure wider learning, changes and better outcomes:

https://www.organdonation.nhs.uk/IncidentSubmission/Pages/IncidentSubmissionForm.aspx