

Transplant surgery: the latest



Kidney transplants

Living donor

Deceased donor

Why?

750mls/day

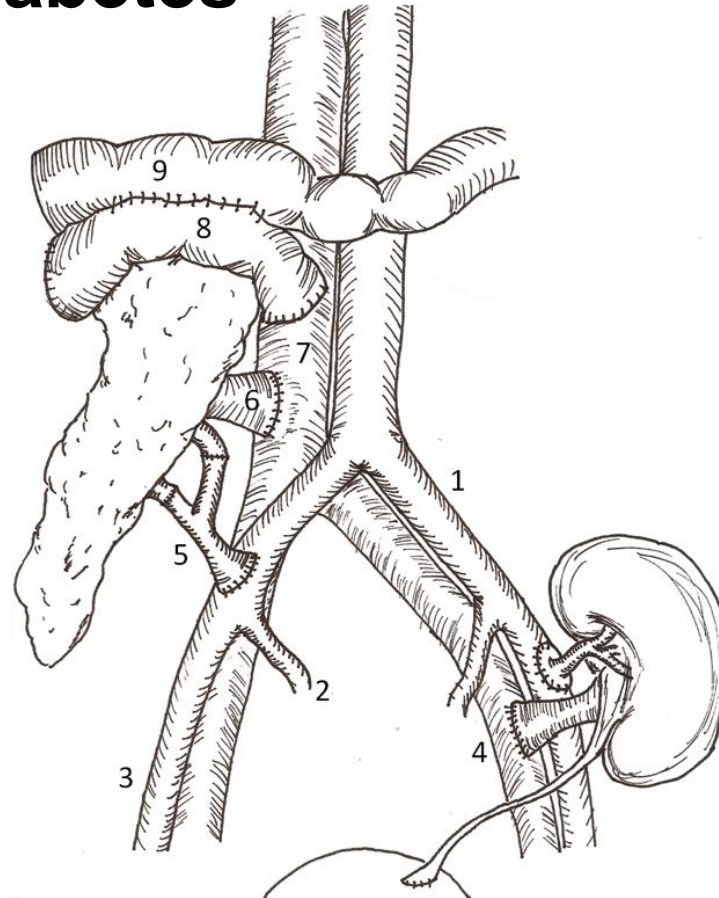
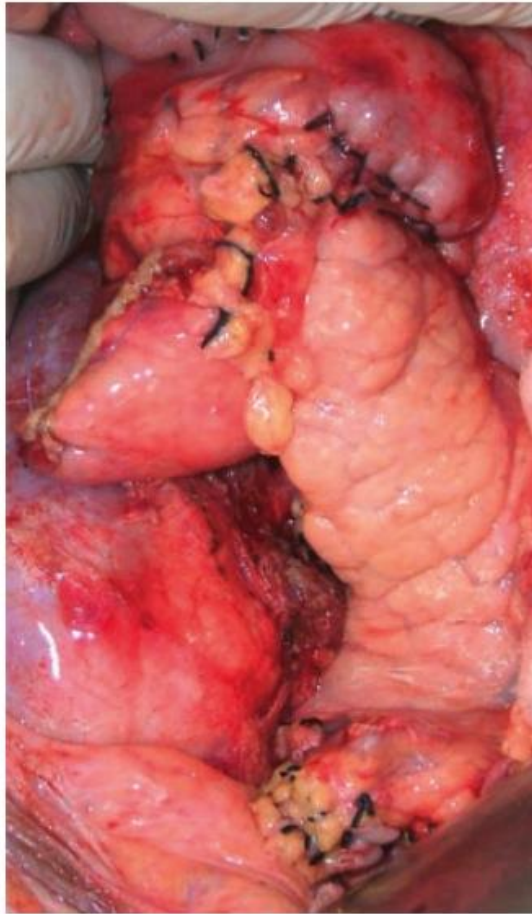
Work is difficult

No holidays

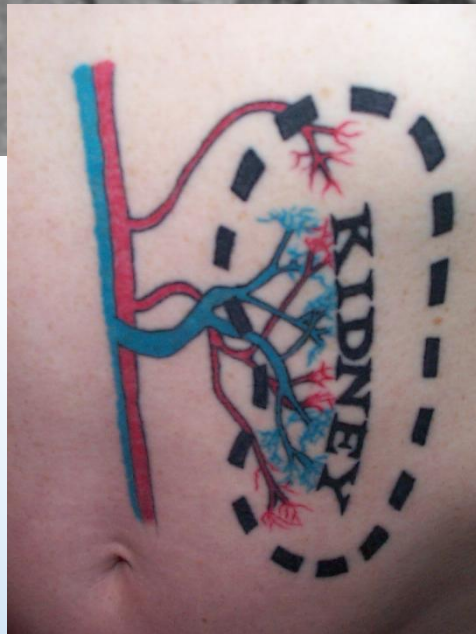
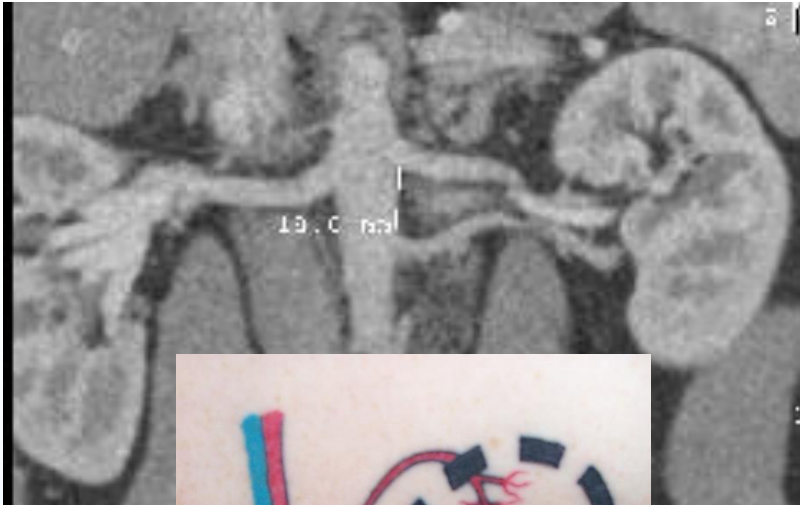
Developmental delay



Pancreas transplant: curing diabetes



Living donation



Challenges: antibodies

Geno	Pheno	Ags	Abs	Uk Freq
OO	O	None	Anti-A and B	46%
AO or AA	A	A	Anti-B	42%
BO or BB	B	B	Anti-A	9%
AB	AB	A, B	None	3%

Antibody incompatible transplantation

Guys has the largest programme in the UK

We have the only paediatric antibody incompatible programme

For some of these patients there is no other option

How we do it

Remove antibodies

Suppress immune system

Treat rejection

Successes:

Transplantation after 21
years (adult), after 10 years (child)

Failures too



Outcome

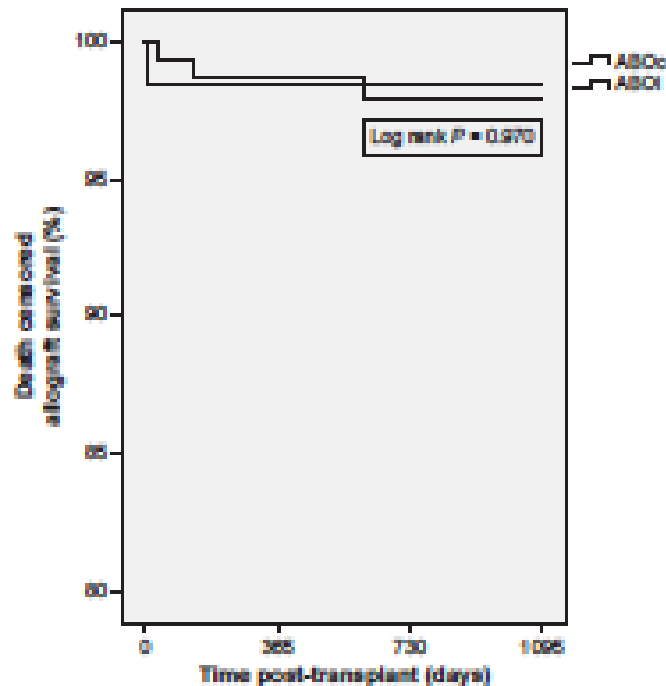


Figure 4 Kaplan-Meier survival curve of death-censored allograft survival at 3 years post-transplant.

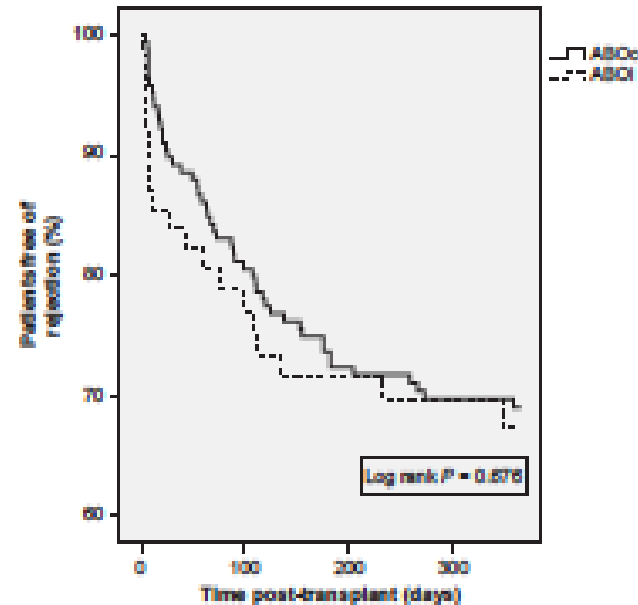


Figure 5 Kaplan-Meier survival curve of rejection-free survival 1 year post-transplant.

Transplantation. 2016 Jul 12. [Epub ahead of print]

Immune Desensitization Allows Pediatric Blood Group Incompatible Kidney Transplantation.

Stojanovic J¹, Adamusiak A, Kessar N, Chandak P, Ahmed Z, Sebire NJ, Walsh G, Jones HE, Marks SD, Mamode N.

Author information

Abstract

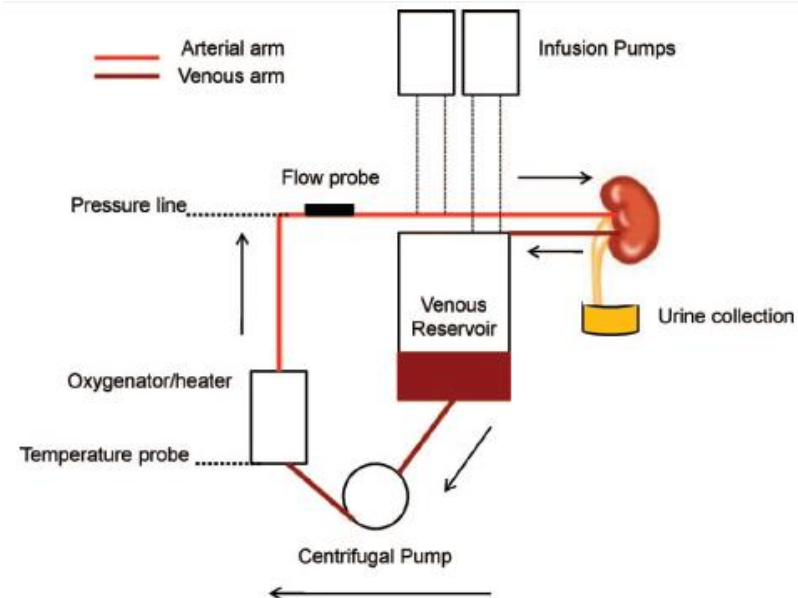
BACKGROUND: Blood group incompatible transplantation (ABOi) in children is rare as pretransplant conditioning remains challenging and concerns persist about the potential increased risk of rejection.

METHODS: We describe the results of 11 ABOi pediatric renal transplant recipients in the 2 largest centers in the United Kingdom, sharing the same tailored desensitization protocol. Patients with pretransplant titers of 1 or more in 8 received rituximab 1 month before transplant; tacrolimus and mycophenolate mofetil were started 1 week before surgery. Antibody removal was performed to reduce titers to 1 or less in 8 on the day of the operation. No routine postoperative antibody removal was performed.

RESULTS: Death-censored graft survival at last follow-up was 100% in the ABOi and 98% in 50 compatible pediatric transplants. One patient developed grade 2A rejection successfully treated with antithymocyte globulin. Another patient had a titer rise of 2 dilutions treated with 1 immunoadsorption session. There was no histological evidence of rejection in the other 9 patients. One patient developed cytomegalovirus and BK and 2 others EBV and BK viremia.

CONCLUSIONS: Tailored desensitization in pediatric blood group incompatible kidney transplantation results in excellent outcomes with graft survival and rejection rates comparable with compatible transplants.

Kidney EVNP



Kidney EVNP

The kidney is prepared.
The artery, vein and ureter
are cannulated



The kidney undergoes
EVNP



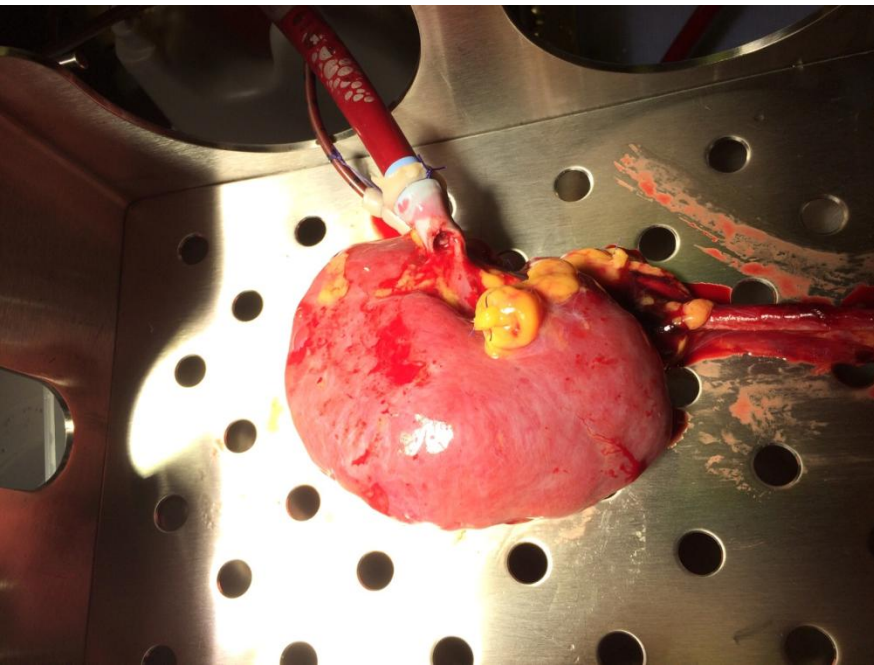
Monitor: Macroscopic appearance

Blood flow(mls/min/100g) ←

Pressure (mmHg)

Resistance(mmHg/mL/min/100 g)

Ex-vivo normothermic perfusion

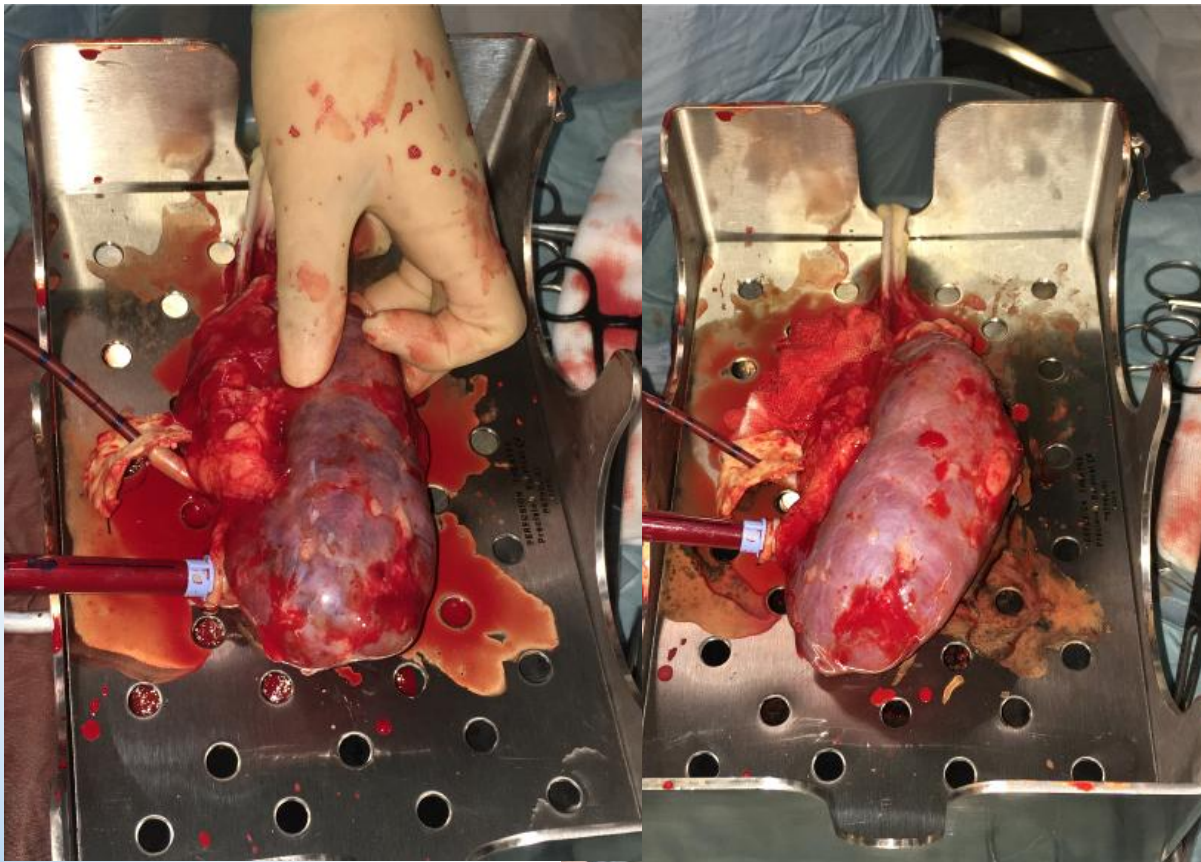


Courtesy P Chandak



Start of EVNP

End of EVNP

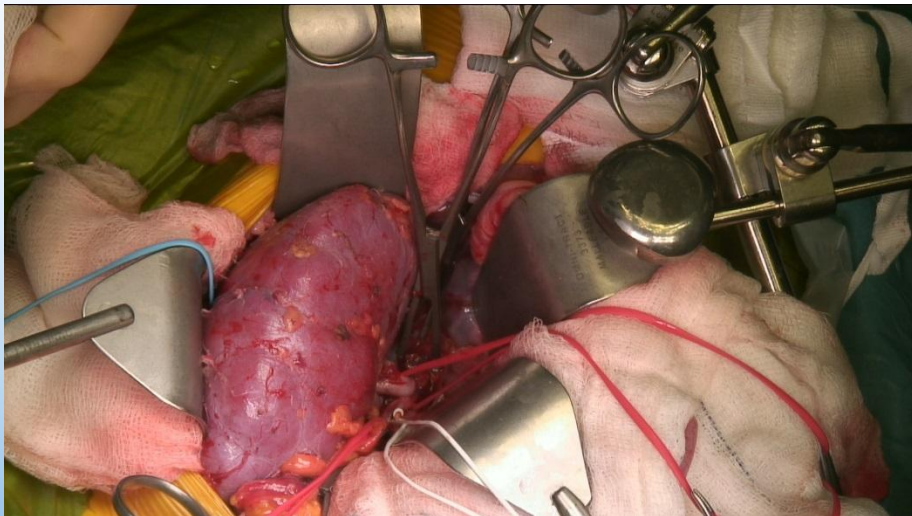
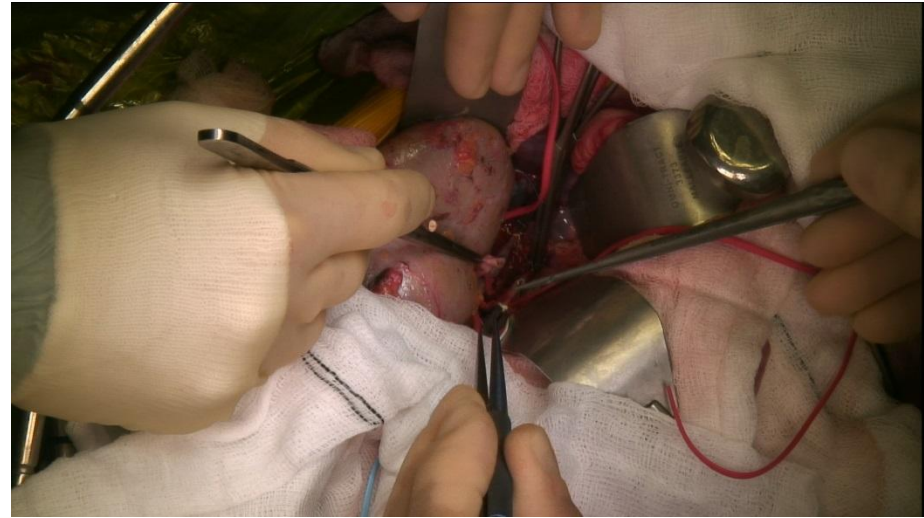


Trial to recondition kidneys (Callaghan)

Trial to use unusuable kidneys (Callaghan)

Experiments to work out how to prevent antibody mediated rejection (Chandak)

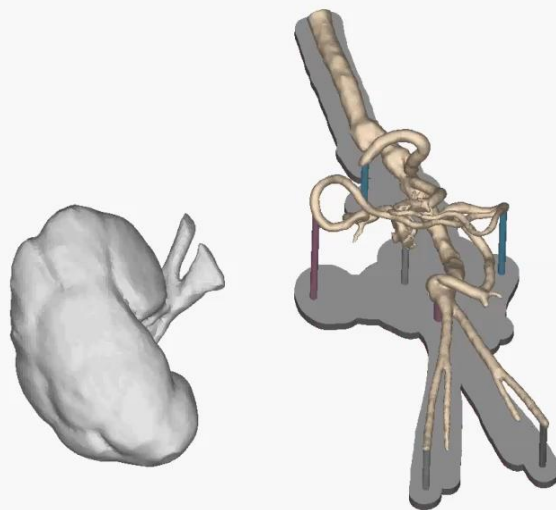
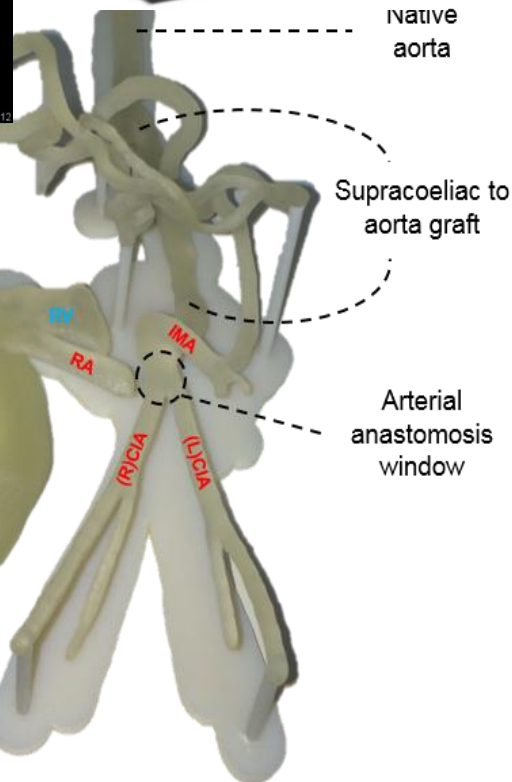
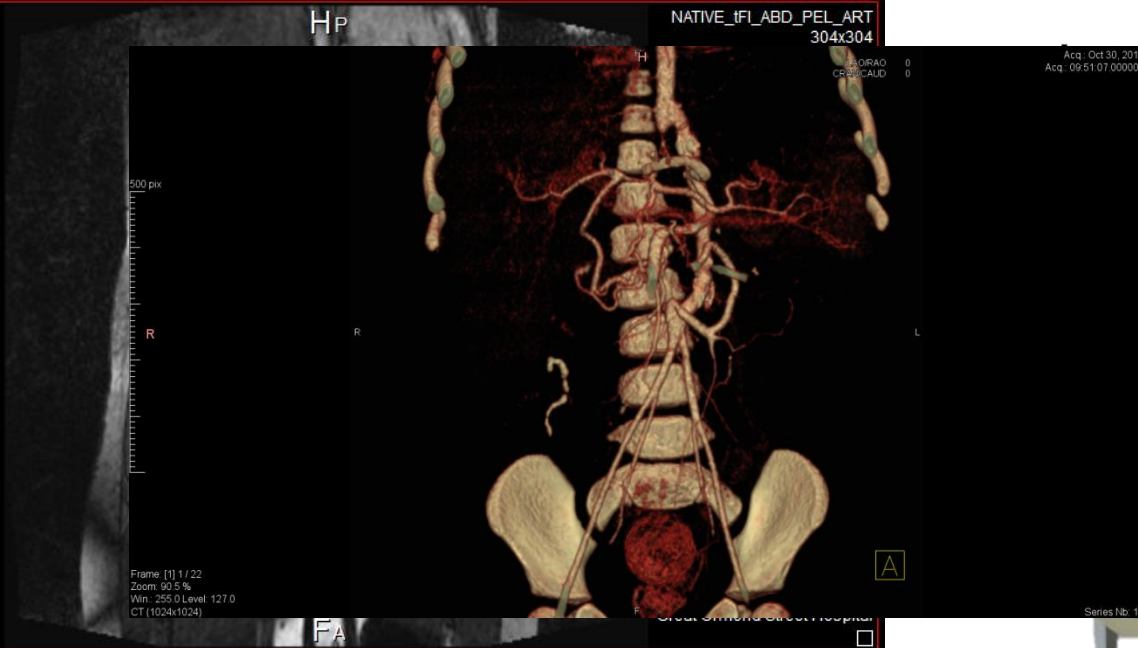
Paediatric transplantation



PATIENT 1
16 years F Patient 1
Acc: RP41720298
08/05/2014

R

ET: 1
TR: 810.0
TE: 1.6
1.3 mm / COR P 14.7 mm
Ww 810, Wc 364
Im 28/60, #28



Paediatric Renal Transplant 3D Model Print

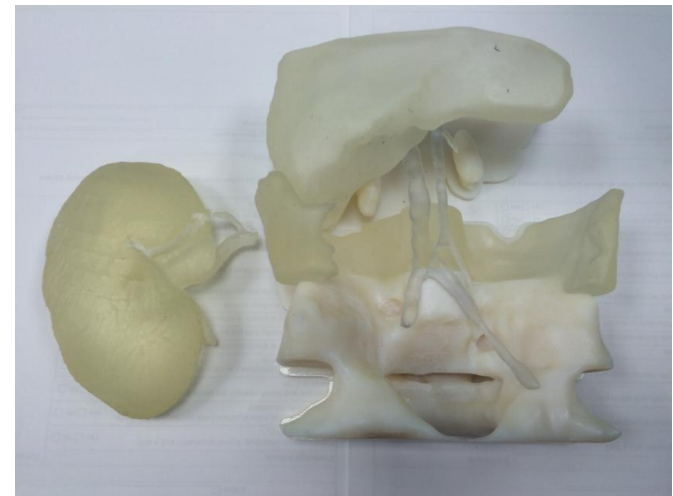
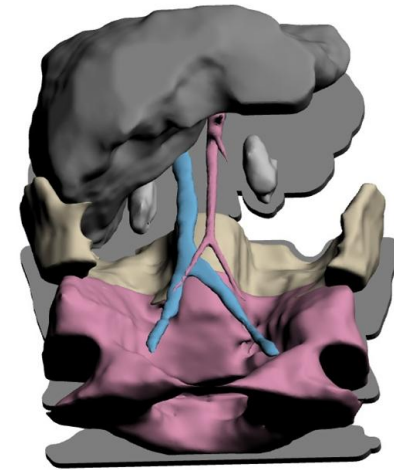
first clinical case
(10 kg child)

Guy's and St Thomas'
NHS Foundation Trust



Right kidney

Left Kidney

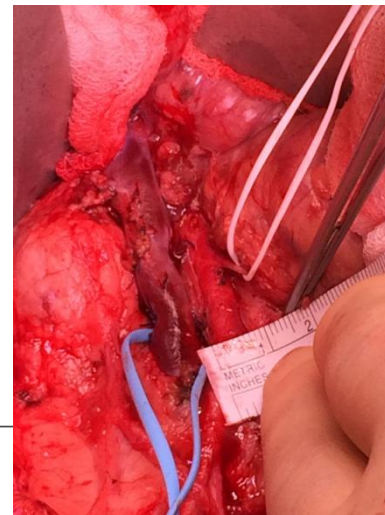
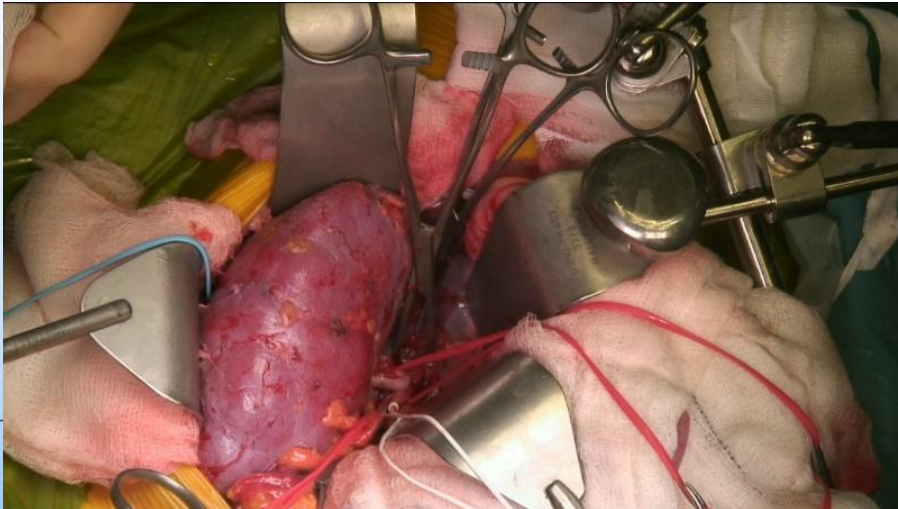


Chandak and Byrne et al
Royal Society of Medicine Norman Tanner Award
Cutler's/RCSEng Award for Innovation, 2016.

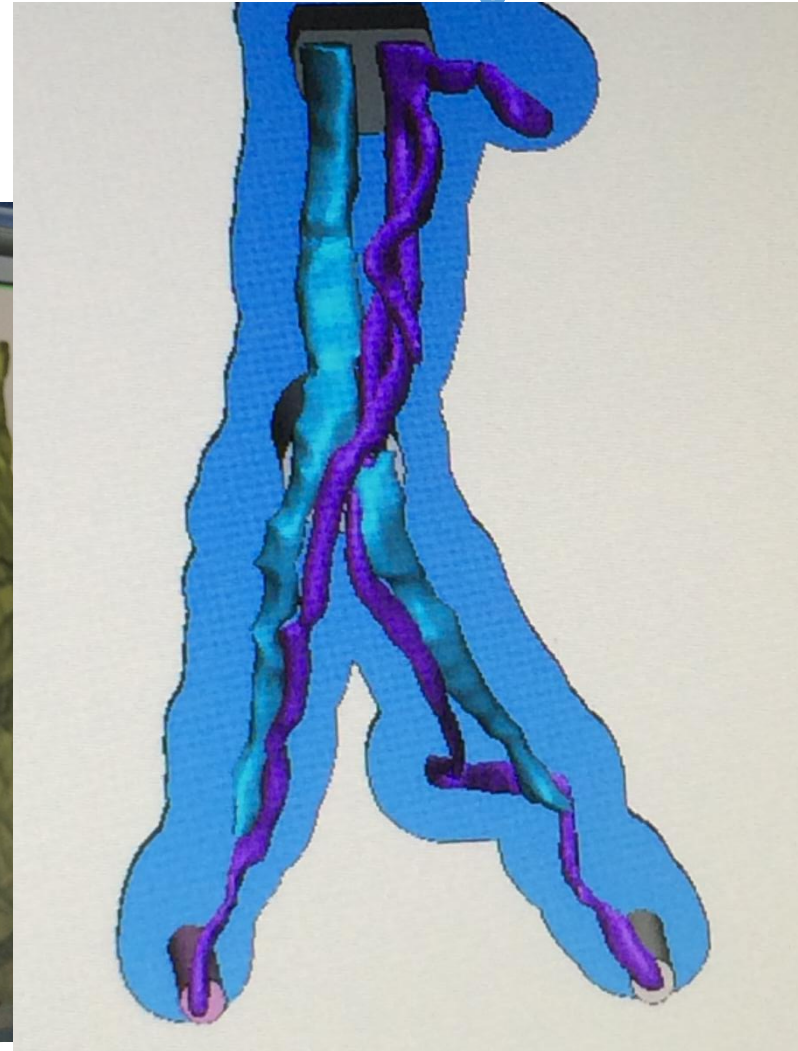
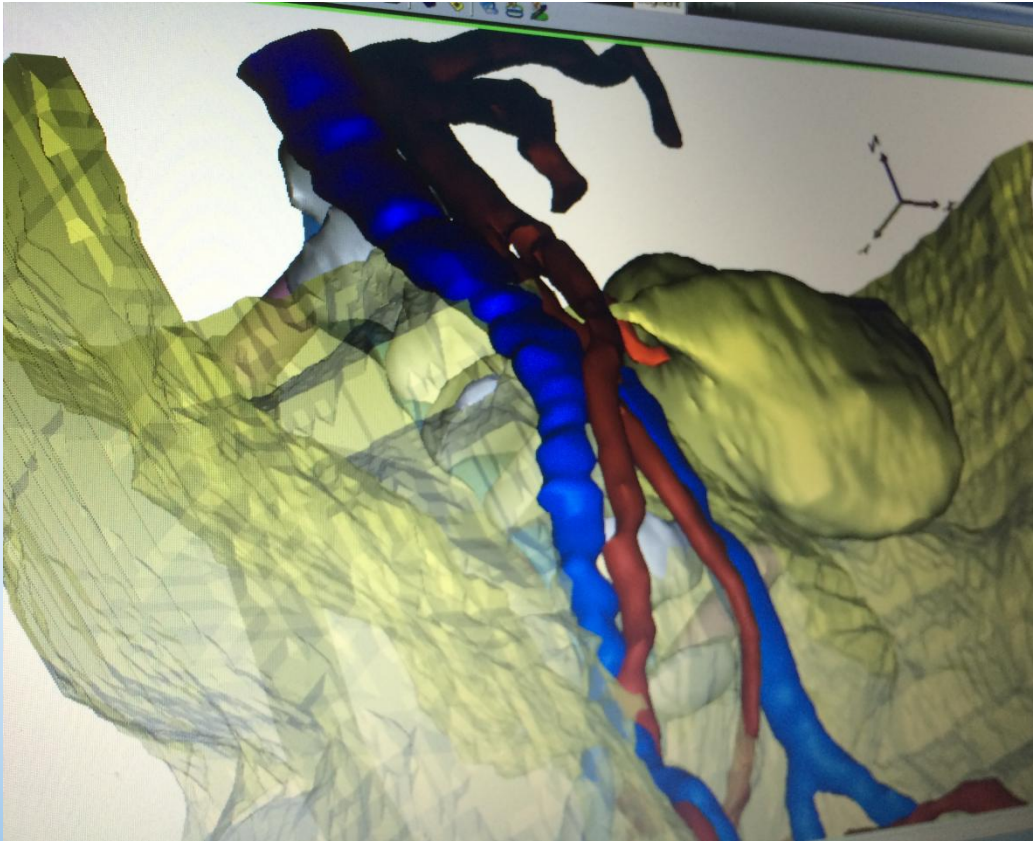


Manipulation of donor kidney and how it lies in small abdomen;

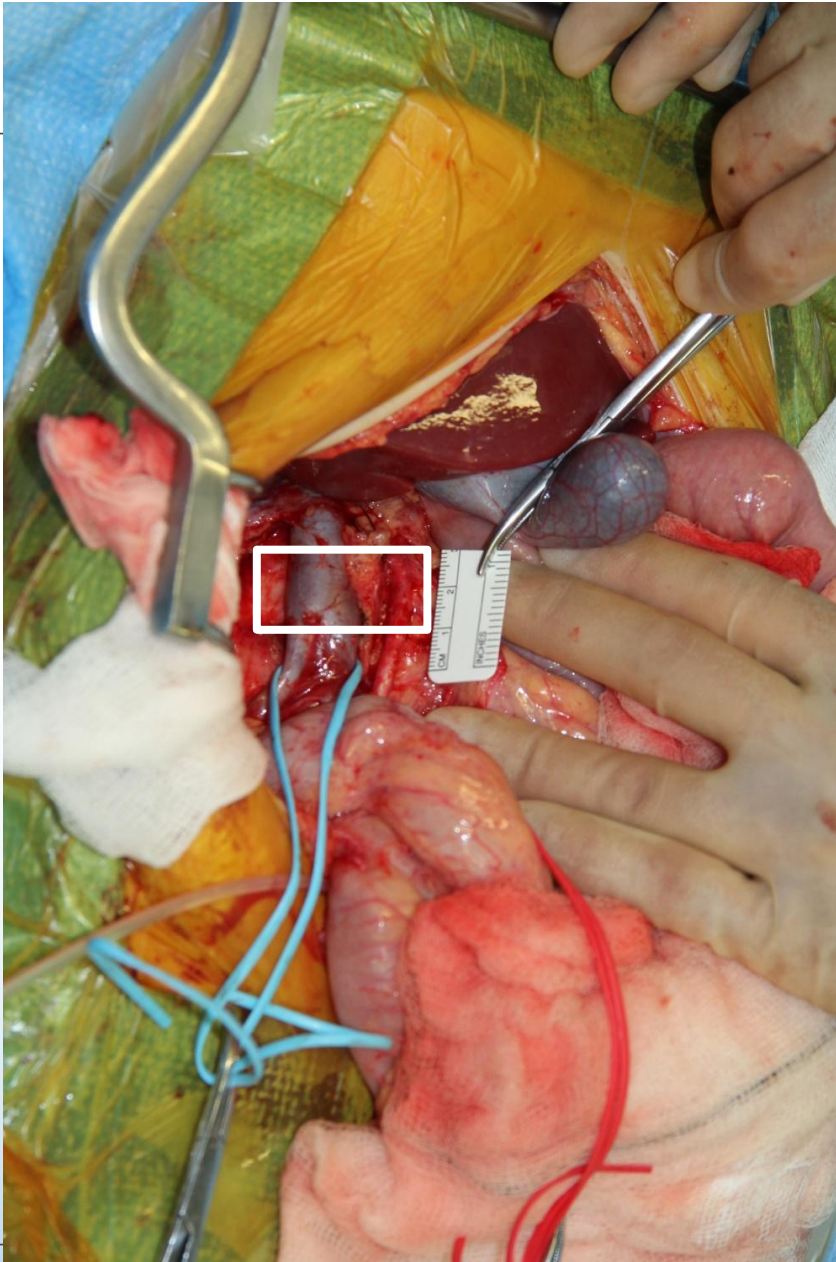
5 surgeons independently confirmed value as a planning tool



14kg F, dysplastic kidneys, high aortic bifurcation with twisting of branches







Surgeons' 3D prints give Lucy a new life

Monday 25 January 2016

Hi 13°C | Lo 6°C Belfast | WEATHER

Belfast Telegraph

HOME NEWS SPORT BUSINESS ENTERTAINMENT TECH LIFE OPINION ARCHIVE

Northern Ireland | UK | Republic of Ireland | World | Health | Education | Politics | Obituaries | Sunday

Home » News » Northern Ireland

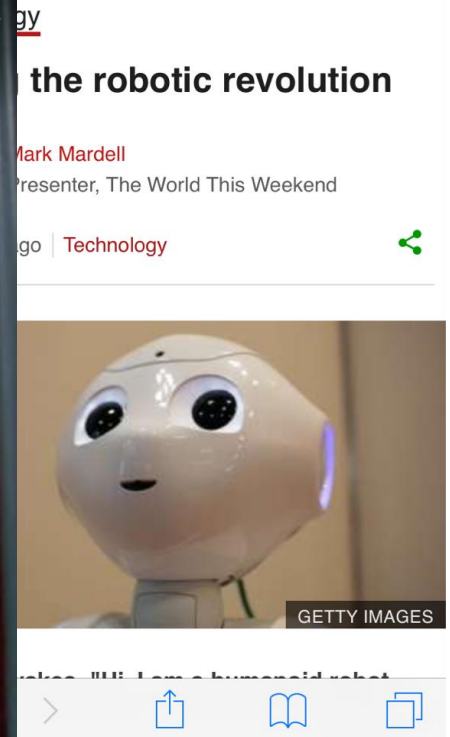
Northern Ireland toddler Lucy Boucher in world first kidney transplant using 3D printing



#VictoriaLIVE
PIONEERING KIDNEY TRANSPLANT

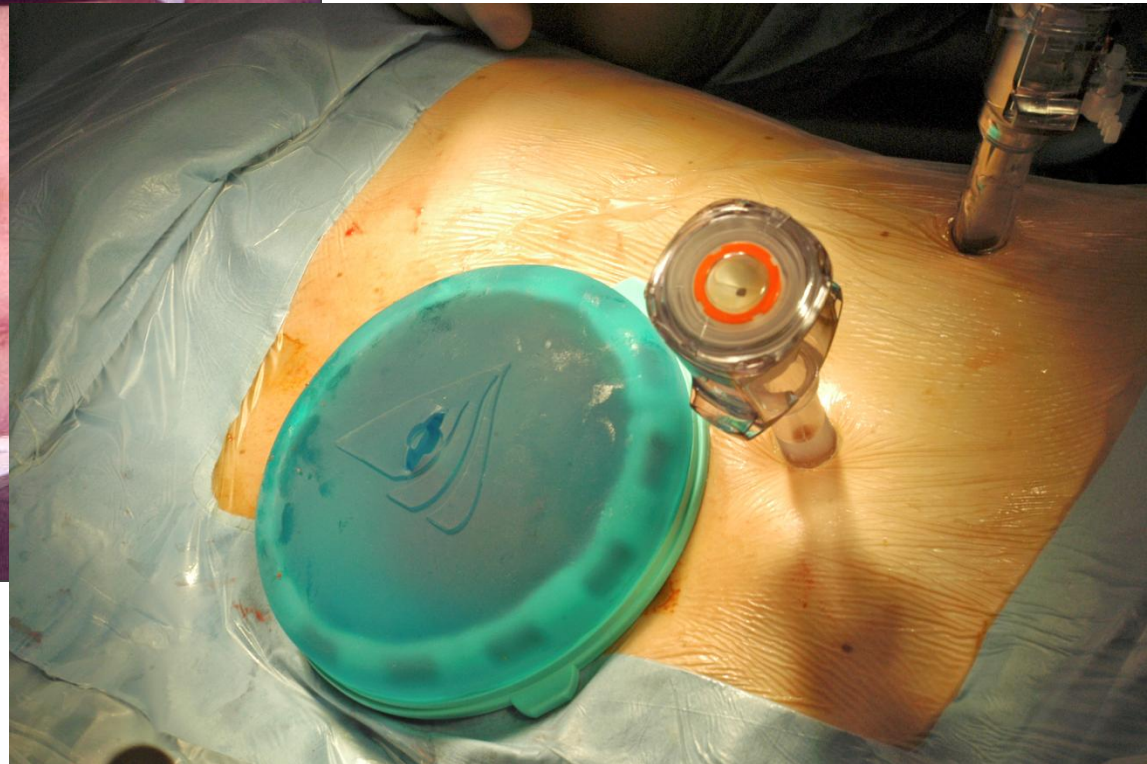








Donor nephrectomy



Robotic Transplantation – First in UK

Guy's and St Thomas'
NHS Foundation Trust



Da Vinci Robot- master slave system



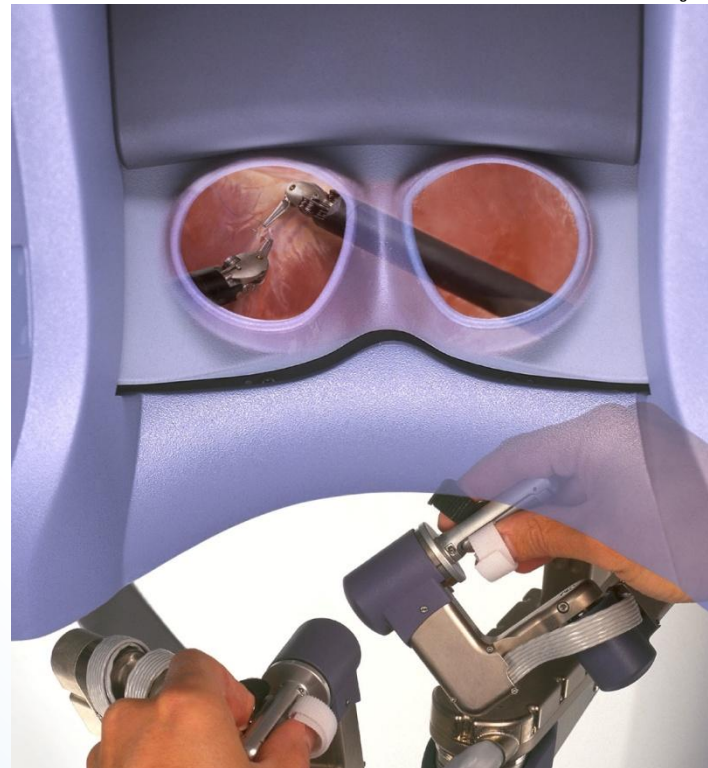
Sunday Times, Sept 2016



R Uwechue, P Gogalniceanu, I Loukopoulos, B Challacombe, P Dasgupta, J Olsburgh, N Kessar, P Modi, N Mamode



1 wound infection



Results

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

Case 3: 49 year old female with chronic kidney disease from renal calculi who was a pre-emptive transplant. BMI of 26. She had immediate graft function. Her creatinine 1 month after surgery was 95µmol/L.

Case	Rewarm time (mins)	eGFR pre-op	eGFR 1 Month	Mean pain score (0-10)	Total morphine (mg)	Discharge day
1	87	13	65	1	15	4
2	73	7	42	1.5	90	4
3	78	11	52	2.9	26	4

- We have demonstrated the applicability and safety of this novel operative technique in the UK.
- These early cases show significant potential in facilitating earlier discharge from hospital with less pain and a potentially superior post-operative recovery phase.
- The effect of the longer rewarming time needs to be evaluated.

Read the full article

Just register a few details.

[Get access](#)**RoboDoc does first kidney transplants**

Sarah-Kate Templeton, Health Editor

September 11 2016, 12:01am, The Sunday Times



Sobhan Morris is recovering from receiving a new kidney that was transplanted using a robotic operation

Two patients have become the first in Britain to have kidney transplants carried out by a robot.

The machine performed the transplants so precisely and caused such limited damage to surrounding tissue that the patients needed only paracetamol to relieve the pain a couple of days after the surgery. They left hospital after four days.

Morris – who previously received a kidney from her mother in 2007 – said: "I was amazed. The pain is probably 80% less than it was first time round because they cut through all the muscles before and they didn't do any of that this time. It is so much easier."

It is expensive



Transvaginal Insertion of Kidney and Robotic Kidney Transplantation

American Journal of Transplantation 2015; XX: 1-8
Wiley Periodicals Inc.

© Copyright 2015 The American Society of Transplantation
and the American Society of Transplant Surgeons

doi: 10.1111/ajt.13224

Laparoscopic Transplantation Following Transvaginal Insertion of the Kidney: Description of Technique and Outcome

P. Modi^{1,*}, B. Pal¹, S. Kumar¹, J. Modi¹,
Y. Saifee¹, R. Nagraj¹, J. Qadri¹, A. Sharmah¹,
R. Agrawal², M. Modi³, V. Shah³, V. Kute⁴
and H. Trivedi⁴

Received 10 July 2014, revised 15 January 2015 and
accepted for publication 16 January 2015



¹Department of Urology and Transplantation Surgery, Smt. G R Doshi and Smt. K M Mehta Institute of Kidney Diseases and Research Centre, Dr H L Trivedi Institute of Transplantation Sciences, Ahmedabad, Gujarat, India

²Department of Obstetrics and Gynecology, Smt. G R Doshi and Smt. K M Mehta Institute of Kidney Diseases and Research Centre, Dr H L Trivedi Institute of Transplantation Sciences, Ahmedabad, Gujarat, India

³Department of Anesthesiology, Smt. G R Doshi and Smt. K M Mehta Institute of Kidney Diseases and Research Centre, Dr H L Trivedi Institute of Transplantation Sciences, Ahmedabad, Gujarat, India

⁴Department of Nephrology, Smt. G R Doshi and Smt. K M Mehta Institute of Kidney Diseases and Research Centre, Dr H L Trivedi Institute of Transplantation Sciences, Ahmedabad, Gujarat, India

*Corresponding author: Pranjal Modi,
dr_pranjal@yahoo.com

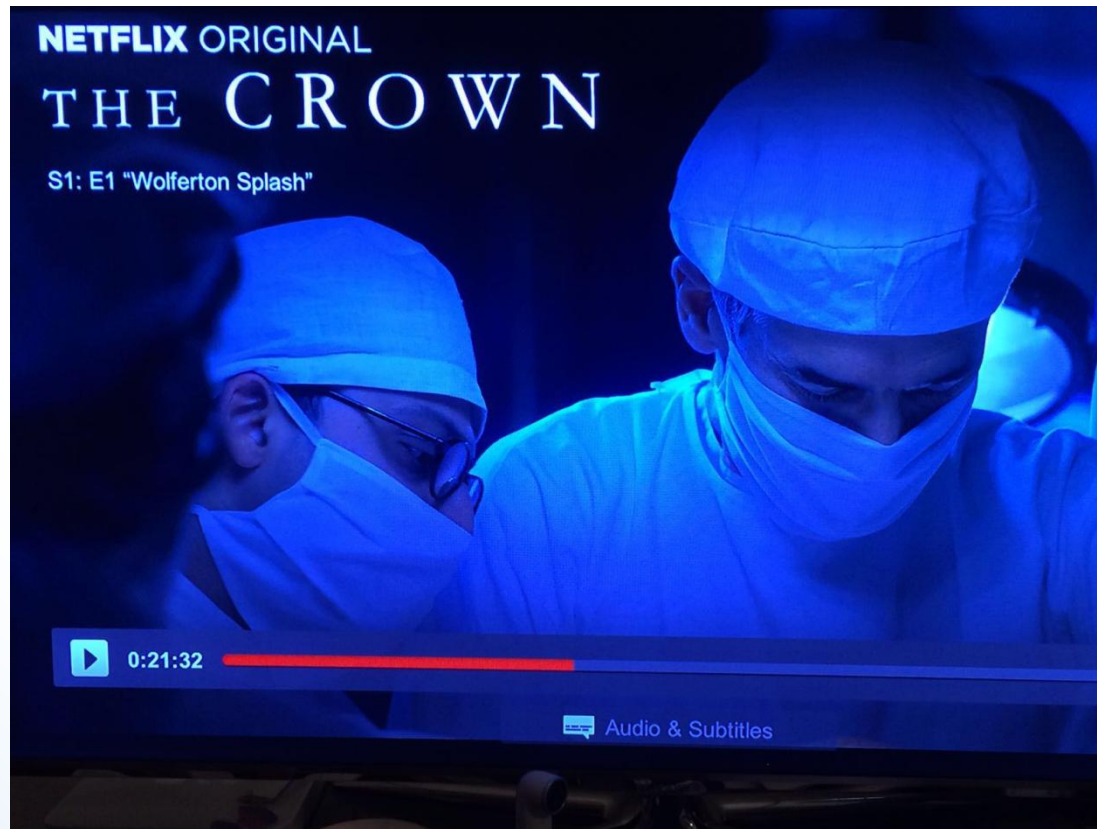
Introduction

Laparoscopic living donor nephrectomy (LDN) is a standard of care at many centers due to its advantages of less pain, early ambulation, rapid convalescence and better cosmesis in comparison to open donor nephrectomy. These advantages of LDN are due to smaller size of retrieval wound in lower abdomen, without need of prolonged retraction during surgery. To further reduce the wound-related morbidity, a few surgeons initiated single site living donor nephrectomy, where procedure was performed through umbilicus, and the same incision was extended to procure the kidney (1,2). More recently, the feasibility and safety of vaginal extraction of the kidney following laparoscopic and robotic assisted living donor nephrectomy has been described (3,4). Avoiding an incision on the abdomen to procure the kidney translates into less pain and suffering for the donor.

Laparoscopic kidney transplantation (LKT) is well accepted modality of treatment for ESRD patients at our center. Usually, the kidney is inserted through

Recipient surgery is usually performed by an open approach. Recently, we, and others, have shown feasibility of laparoscopic or robot-assisted kidney transplantation

New directions for the team



Why transplant surgery? : Teamwork

