

Pathology – Kidney Transplantation

Renal Block

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430 Pathology team

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Notes:

There were some points that were not mentioned in the hand outs, however the doctor stated that it will be included in the exam.

Highlighted with yellow color = Important.

Please focus.

Transplantation:

Moving an organ from one body to another due to damage or absence of the organ.

Donor represents the body of the given organ, while Recipient is the receiving body.

This process is majorly interrupted by immunological rejection of the transplanted tissue (which is going to be explained later on)

Grafting:

Is a procedure that includes moving a tissue from one site to another in the body, so the tissue is defined as Graft.

Types of Graft:

1) Isograft.

Transplantation between two identical twins (monozygotic twins), and it's the ideal transplantation since both of them have identical genes.

2) Autograft.

Transplantation from one site to another in the same individual, e.g. Skin graft, and it's common in plastic surgery.

Never occurs in kidneys.

3) Allograft.

Transplantation of organs within the same species, and it's the most common type of transplantation.

4) Xenograft.

Transplantation between different species, E.g. From baboons and cows to human. Was communally in valves transplantation, but nowadays the valves are artificial.

Investigations before transplantation:

- 1) Blood grouping
- 2) HLA (Human Leukocyte Antigen) typing.

Team of Transplantation:

- 1) Immunologist. (The most important member for doing investigation)
- 2) Surgeon.
- 3) Pathologist.
- 4) Renal Physician.

Problems that occur in transplantation:

1) Anastomosis.

-The difficulty of the surgery is in connecting vessels between the organ and in the body.

-could cause: Thrombosis.

2) Recurrent of the old disease.

E.g. Membranous Proliferative Glomerulonephritis .

3) Graft rejection.

Most common and it covers our lecture.

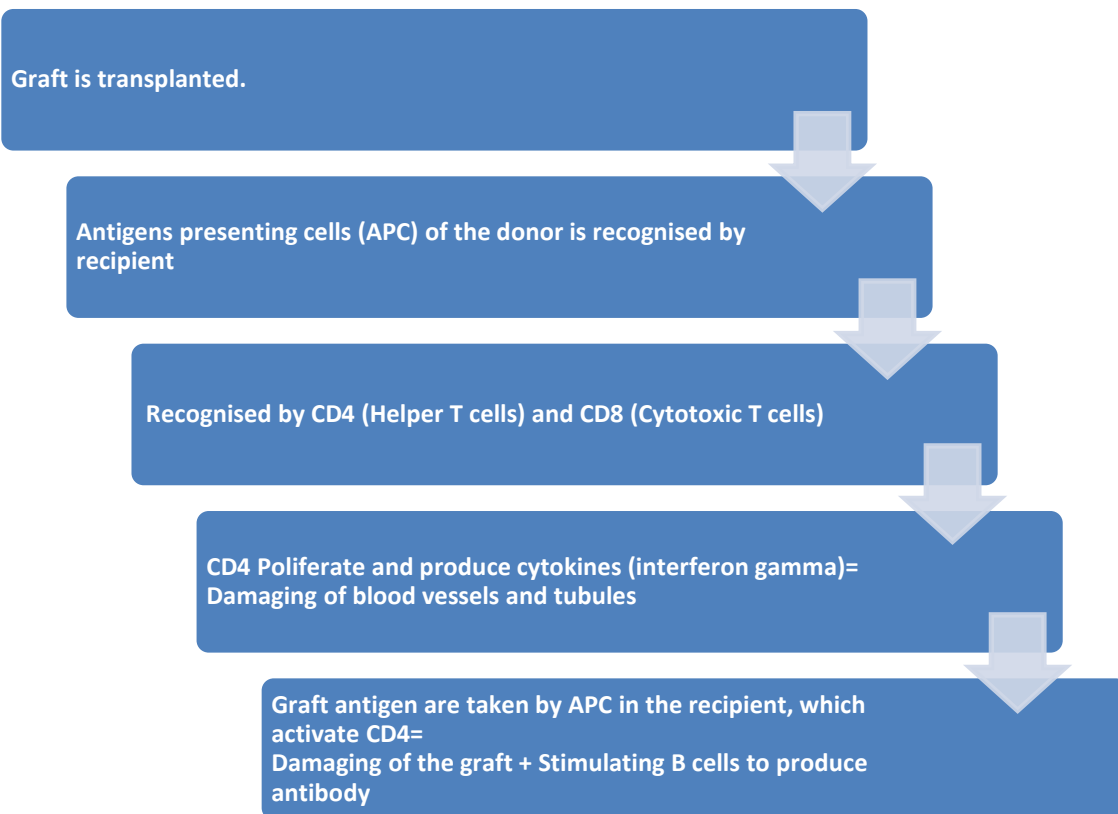
Mechanisms of graft rejection:

Rejection is a complex phenomenon involving both cell-mediated (Type 4 hypersensitivity) and antibody-mediated (Type 2) against the histocompatibility* on the foreign graft.

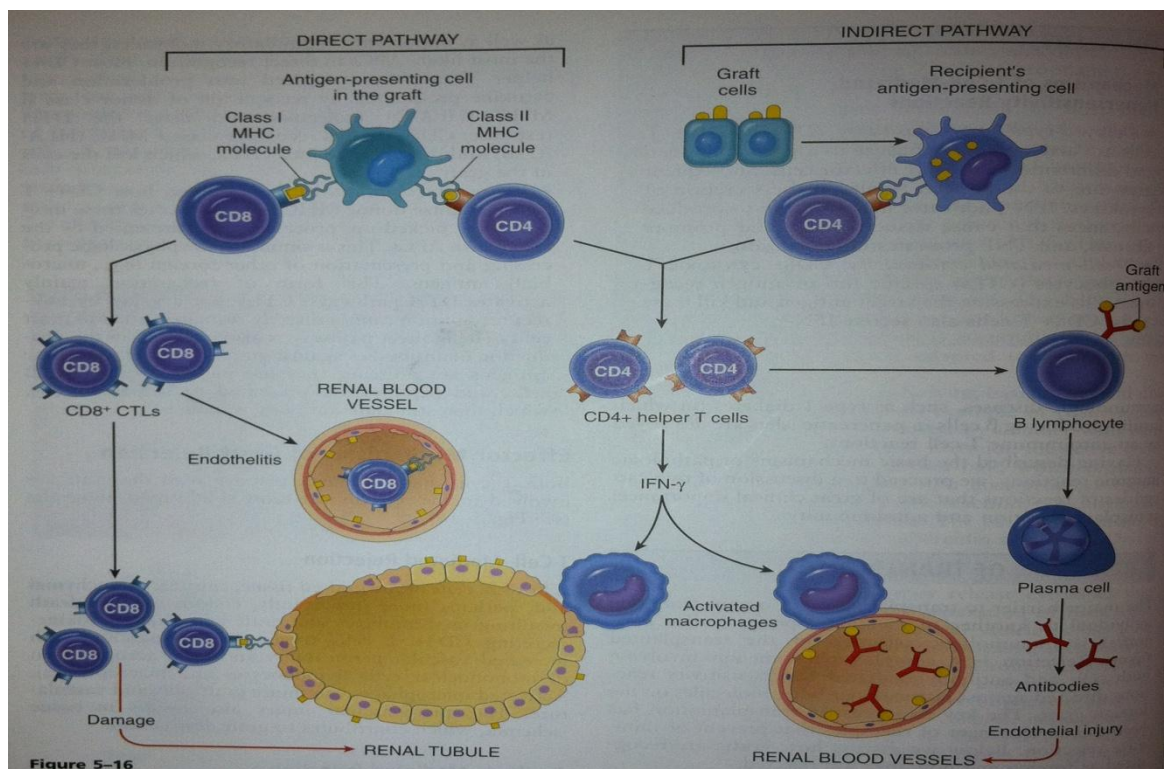
The key of successful transplantation has been the development of therapies that prevent or minimize rejection and it's called immune suppressive.

*Meaning: a state of mutual tolerance that allows some tissues to be grafted effectively to others.

Before we go to the categories we must know an overview about the mechanism:



here's a garph to illutsrate the process:



Types of rejections:

1) Hyperacute rejection.

Duration:

minutes – hours.

Main characteristics:

-Grossly: Cyanotic Kidney.

-Microscopically: Vasculitis + Thrombosis + Ischemic necrosis + Coagulative necrosis.

2) Acute rejection.

Duration:

Mainly days – weeks, and sometimes months or years later.

Divided into:

-Cellular rejection: Edema and lymphocytic infiltration, may cause tubulitis.

-Humoral rejection: associated with vasculitis.

It's treatable.

3) Accelerated acute rejection.

Duration:

<weeks.

Etiology:

occur in patients who have had transplantation, and has been removed later.

Chronic rejection.

Duration:

months – years

Main characteristics:

Increase in serum creatinine levels.

-Grossly:

shrunk kidney.

-Microscopically:

vascular changes (narrowing of the lumen)+ Fibrosis+ Intima thickening.

Bad Prognosis, could not be treated.