

Claims

1. A catheter assembly comprising:
 - a. a steerable guide wire configured for temporary blood vessel occlusion, comprising:
 - (i) a distal end expandable assembly, wherein the expandable assembly is capable of being changed from a retracted state to an expanded state and wherein the expandable assembly is arranged in a substantially conical configuration; and
 - (ii) a pivotable joint connecting the expandable assembly to the guide wire;
 - and
 - b. a first tube, wherein the guide wire is located within the first tube,
 - c. optionally wherein said guide wire is located in a second tube positioned within said first tube,

wherein the first and/or second tube is made of or covered with a non-sticking material comprising polytetrafluoroethylene (PTFE) or perfluoroalkoxy (PFA), and wherein the first tube comprises one or more side holes.

2. The catheter assembly according to claim 1, wherein the catheter assembly comprises a sliding sleeve accommodating the expandable assembly in a retracted state within said the assembly.
3. The catheter assembly according to claim 1 or claim 2, wherein the expandable assembly is retrievable and resiliently deformable in a retrievable configuration.
4. The catheter assembly according to any one of claims 1 to 3, wherein the expandable assembly comprises an impermeable membrane, wherein the membrane is made of a shape memory material and has a net-like filter structure.
5. The catheter assembly according to any one of claims 1 to 4, wherein the expandable assembly has an expansion ratio ranging from at least 1:5 to at least 1:10 of its diameter before and after expansion.
6. The catheter assembly according to any one of claims 1 to 5, wherein the expandable assembly is configured to adhere to the inner wall of a vessel lumen by means of at least one adhesive component.
7. The catheter assembly according to any one of claims 1 to 6, wherein the pivotable joint of the guide wire allows for deflecting the expandable assembly in two or three dimensions relative to the guide wire.
8. The catheter assembly according to any one of claims 1 to 7, wherein the pivotable joint is selected from the group consisting of: non-axial joint, uniaxial joint, biaxial joint, multiaxial joint.

9. The catheter assembly according to any one of claims 1 to 8, wherein the first tube has an inner diameter ranging from 0.6 to 2.2 mm, an outer diameter ranging from 0.8 to 2.8 mm and a length of 15 to 85 cm.
10. The catheter assembly according to any one of claims 1 to 9, wherein the catheter assembly is conceived to temporarily occlude tortuous and/or branched vessel segments in mammals.