Vascular surgery will change dramatically over the next decades. New technology will revolutionize the way we visualize the blood vessels. Diagnostic methods will be noninvasive with three-dimensional imaging of the entire vascular system, replacing conventional arteriography, as patients will demand less invasive methods for both diagnostic evaluation and therapy.

Today endovascular aneurysm repair is a valuable and highly beneficial treatment in the presence of a suitable morphology. Yet anchorage of the device within the aorta has to be extended beyond a friction force-based concept and include also a biological component beside a more sophisticated mechanical fixation. A better and more durable anchorage will allow the repair of aneurysms with a short or even absent neck.

The ultimate goal of endovascular aneurysm treatment is its application in ruptured aneurysms. Patients in hemorrhagic shock will profit tremendously from a straightforward procedure with a minimal trauma load. Thus the mortality may be dramatically reduced. However, for the time being endovascular repair requires precise knowledge of the aneurysm morphology, and even a spiral CT scan is too time-consuming under these circumstances. Intravascular ultrasound for intraoperative seizing and device navigation is probably the ideal tool. Further requirements for the emergency repair are endoprostheses that can adapt themselves to a wide range of neck diameters and aneurysm lengths. There is no doubt that this goal will one day be achieved.

The treatment of both abdominal aortic aneurysms, including visceral branches and aortic arch aneurysms including supraaortic branches, is another future application to endoprostheses. Extensive thoraco-abdominal exposure or deep hypothermia with the use of a cardiopulmonary bypass could be avoided. Branched or fenestrated grafts have already been in use, but their application is extremely time-consuming, complicated, and tricky, and therefore still on an investigational base.

Vascular surgery is developing towards a demanding, highly technology-based specialty offering patients with an aortic pathology a tremendous benefit.
### Subject Index

#### A
- aneurysm 95, 100
  - artificial 57, 68
  - classification 96, 97
  - elastase-induced 58
  - endovascular 6
    - experimental 52
    - repair 52, 54
    - enlargement 108
  - experimental 67
  - in-vitro 61
  - morphology 95
  - neck 96, 110
  - overdilatation 59
  - repair 6
    - endovascular 52, 54, 131
    - rupture 56, 57, 59, 97, 98, 131
    - site 107
  - aorta 53
    - coarctation 78
    - traumatic rupture of aorta (TRA) 118
    - endovascular repair 118

#### B
- balloons 20, 22, 59, 123, 127, 128

#### C
- coarctation 78
- Coenzyme A (CoA) 89
- coil 75
- conversions 105, 110
- cross section 78, 81, 89

#### D
- Dacron, see polyester

#### E
- embolization 116, 120
- endoleak 61, 66, 68, 70, 72, 73, 75, 106, 107, 109
  - coil embolization 66, 69, 72, 73, 75, 107
  - enlargement 66
- endoprostheses (EPs) 26, 33, 40, 78, 79, 103, 106, 113, 114, 124
  - characteristics 43
  - experimental 26
  - healing 36, 79
  - neck 40, 106
  - traumatic rupture 113
- endothelium 35, 37, 43, 47
  - endovascular
    - grafts 68
    - procedures 1
  - repair, traumatic rupture of aorta (TRA) 118

#### F
- fluoroscopy 81, 103, 124

#### H
- homograft 3
- hyperplasia, intimal (IH) 29, 33, 43, 47, 54, 86, 88, 89
- hypotension 114, 123, 127, 128
I

inflammation 30, 36, 81, 86
inflow occlusion 123, 126, 127

L

latex 19, 22, 24
- biocompatibility 25
- characteristics 24
- Palmaz stent 19

N

neointima, see hyperplasia, intimal (IH)
Nitinol 4

O

overdilation 59
oversizing 17, 78, 83, 88

P

patch 54, 55
- endovascular aneurysm repair 54
polyester 3, 42
polyurethane 11, 17, 26, 27, 36, 89
- healing 26
pressure 11, 14, 16, 17, 22, 61, 66, 69,
73, 74, 75, 128
- aneurysmal 69
- measurements 67, 69
pseudoaneurysm 114, 119, 120

S

spiral 4
stent 5, 11, 24
- characteristics 5, 11, 21
- expansion 21, 49
- healing 30, 48
- Palmaz stent 19, 67
- - characteristics 19
- - recoil 21, 23
- self-expandable 11, 41
- Wallstent 11, 27, 41
- - characteristic 18

T

thrombosis 57
- pressure transducer 57
traumatic rupture of aorta (TRA)

U

ultrasound scanning, intravascular
(IVUS) 80, 81, 100, 102, 105, 109,
113, 115, 119, 124
- aneurysm repair 103
- cross section 81, 103
- dissection 119
- neck 120