Contents

1. General Aspects of Transvaginal Ultrasound ........ 1
   Three dimensional transvaginal probes ............ 7
   Accessories of a transvaginal probe ............... 8
   Basis of transvaginal scanning ...................... 8
   Transrectal sonography ................................. 17
   Probes, planes and orientation ........................ 17
   Indications of TRS ........................................ 19
   Authors’ results .......................................... 28

2. Transvaginal Sonography for Detection of Fetal Anomalies ............ 31
   Ultrasound markers of aneuploidy
      in the first trimester .................................. 32
   Early detection of fetal abnormalities .............. 40
   Quantification of fetal kinetics by ................... 49
   Transvaginal Doppler ultrasonography .............. 49
   Assessment of fetal nervous system
      in First trimester ...................................... 55
   Transvaginal approach to the fetal brain .......... 55
   Hydrocephalus and ventriculomegaly ............... 59
Transvaginal assessment of congenital
  CNS anomalies ........................................... 67
Assessment of fetal brain in second
  and third trimesters ................................... 81
Normal intracranial anatomy ......................... 82
Transvaginal ultrasonographical ....................... 89
Evaluation of main cerebral malformations ....... 89

3. Transvaginal Sonography for Detection of
  Pregnancy and its Related Complications .......... 97
   Ultrasonographic signs of poor
     pregnancy outcome ...................................... 98
   Normal development in the first
     trimester of pregnancy ................................ 98
   Sonographic findings to diagnose
     an interrupted pregnancy ............................. 101
   Poor prognosis of pregnancy:
     Sonographic findings ................................. 103
   Placenta previa and placenta accreta .............. 115
   Placenta accreta .......................................... 116
   Assessment of placental vascularization
     by 3D power Doppler ultrasound
     “placental biopsy” in normal pregnancies ..... 121
   Three-dimensional Doppler indices during
     normal gestation ....................................... 123
Placental biopsy in fetal growth ......................... 126
Transvaginal assessment of the cervix ............... 130
Transvaginal sonography in multiple
  pregnancy ....................................................... 132
Two-dimensional sonography in diagnosing
  multiple pregnancy ........................................ 132
Three-dimensional sonography in diagnosing
  multiple pregnancy ........................................ 140
Four-dimensional sonography in multiple
  pregnancy ....................................................... 152

4. Transvaginal Sonography in Gynecology ........... 159
  Intrauterine synechiae (adhesions) ................... 161
  Adenomyosis .................................................. 162
  Endometrial hyperplasia ................................ 163
  Endometrial carcinoma .................................. 164
  Leiomyoma .................................................... 165
  Leiomyosarcoma ............................................. 166
  2D and 3D power Doppler ultrasound study
    of endometrium as implantation marker ...... 168
  Asymptomatic simple ovarian cyst
    in postmenopausal women:
    Syndrome of “Visible ovary” ....................... 173
  Transvaginal sonography in evaluation
    of functional ovarian cysts ....................... 176
12 / Transvaginal Sonography

Illustrative examples .......................................... 177
Role of color Doppler ultrasound in
  postmenopausal women........................................ 192
Ectopic pregnancy .................................................. 195
Female pelvic floor: Descriptive anatomy
  and clinical exploration by transvaginal
  ultrasound echography.................................. 200
Echography use in pelvic diagnosis ..................... 202
Echography and anatomy of the pelvis minor
  and the pelvic floor (correlation) ..................... 210
Pathologies of the posterior pelvic region ......... 217
Pathologies of the anterior pelvic region .......... 224
Sonography of the pelvic infection .................... 230
Endometritis .................................................... 248
Hydrosalpinx ..................................................... 248
Sonohysterography ............................................. 251
Technique ......................................................... 254
Transvaginal sonography in
  postmenopausal women................................. 260

5. Doppler Sonography ........................................... 277
Doppler indices ............................................... 282
Power Doppler ultrasound ............................... 285
Sonographic imaging in infertility ................. 287
Ovarian causes of infertility ............................... 293
Chorionic volume and intervillous blood flow in normal first trimester pregnancies assessed by 3D power Doppler ultrasound ... 298
Doppler evaluation of the ovary: Clinical applications and challenges .......................... 302

6. 3D Transvaginal Sonography .......................... 305
3D ultrasound findings from ovulation to implantation .................................................. 309
Events following implantation ........................................... 311
3D ultrasound in multiple pregnancy ................... 331
3D ultrasound as a tool for measurement of the nuchal translucency ............................ 333
3D ultrasound in early detection of fetal anomalies ..................................................... 333
Cesarean scar hysterotomy: Assessment by 3D transvaginal echography .................. 339
Echography survey of hysterotomy-made scars ......................................................... 339
Sonographic differential diagnosis of pelvic masses .................................................... 348
Evaluation of an ovarian mass ........................................ 355
7. 4D Transvaginal Sonography .......................... 361
   Technicalities of 4D imaging .......................... 362
   Fetal upper limb movement in the
   first half of pregnancy detected
   by transvaginal 4D ultrasound .................... 376
   Normal fetal hand and finger positioning
   and movement in early pregnancy by
   3D/4D technology ....................................... 377

Index ....................................................................... 385