**Table S1 Summary of the complications of late amniocentesis**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Complication | Amniocentesis to Complication interval | Gestation | Age | Timing of amniocentesis | Indication of  amniocentesis | Genomic  result | | Genomic results  before delivery  (Y/N) | Fetal  outcome |
| **PTB**  **(33)** | Within one week  (6) | Singleton (4) | 38 | 35+3 | Digestive system malformations | | Normal | N | LB |
| 40 | 27+4 | FGR | | Normal | N | LB |
| 26 | 32+2 | Fetal appendage malformations | | Normal | N | LB |
| 32 | 35+5 | Skeletal malformations | | CNV | N | LB |
| MCDA (1) | 30 | 32+4 | Multiple abnormalities | | Normal | N | LB |
| Normal | | Normal | N | LB |
| DCDA (1) | 39 | 32+0 | Multiple abnormalities | | Normal | N | LB |
| CNS malformations | | T21 | N | LB |
| Within one month  (5) | Singleton (5) | 33 | 27+4 | CNS malformations | | CNV | Y | LB |
| 31 | 31+0 | Digestive system malformations | | Normal | Y | LB |
| 29 | 31+0 | Cardiovascular malformations | | Normal | Y | LB |
| 24 | 33+0 | CNS malformations | | Normal | Y | LB |
| 31 | 29+0 | Polyhydramnios | | Normal | Y | LB |
| After one month  (22) | Singleton (16) | 27 | 26+5 | Cardiovascular malformations | | Normal | Y | LB |
| 21 | 24+6 | Facial malformations | | Normal | Y | LB |
| 44 | 31+1 | FGR | | CNV | Y | LB |
| 21 | 30+5 | Multiple abnormalities | | Normal | Y | LB |
| 34 | 27+0 | SGA | | Normal | Y | LB |
| 24 | 29+5 | Cardiovascular malformations | | Normal | Y | LB |
| 29 | 31+6 | SGA | | Normal | Y | LB |
| 35 | 27+0 | Monogenic disease in the family | | Normal | Y | LB |
| 25 | 26+3 | Fetal appendage malformations | | Normal | Y | LB |
| 30 | 27+3 | FGR | | Normal | Y | LB |
| 38 | 32+0 | Urogenital malformations | | Normal | Y | LB |
| 39 | 24+4 | FGR | | Normal | Y | LB |
| 27 | 29+1 | CNS malformations | | Likely benign | Y | LB |
| 29 | 26+0 | Urogenital malformations | | Likely pathogenic | Y | LB |
| 27 | 29+3 | Digestive system malformations | | Normal | Y | LB |
| 35 | 27+0 | CNS malformations | | Normal | Y | LB |
| MCDA (2) | 28 | 25+3 | CNS malformations | | Normal | Y | LB |
| CNS malformations | | Normal | Y | LB |
| 34 | 28+0 | Abnormal NIPT | | Normal | Y | LB |
| Abnormal NIPT | | Normal | Y | LB |
| DCDA (4) | 36 | 24+0 | Cardiovascular malformations | | Normal | Y | LB |
| Normal | | Normal | Y | LB |
| 34 | 24+2 | CNS malformations | | Normal | Y | LB |
| Normal | | Normal | Y | LB |
| 30 | 25+4 | Cardiovascular malformations | | Normal | Y | LB |
|  | Normal | | Normal | Y | LB |
| 25 | 24+0 | Skeletal malformations | | Normal | Y | LB |
| Normal | | Normal | Y | LB |
| **IUD**  **(16)** | Within one week  (2) | Singleton (2) | 21 | 37+5 | CNS malformations | | Normal | N | IUD |
| 25 | 24+6 | CNS malformations | | CNV | N | IUD |
| Within one month  (5) | Singleton | 31 | 31+6 | Urogenital malformations | | Normal | Y | IUD |
| DCDA（2） | 32 | 24+5 | Abnormal NIPT | | T21 | Y | IUD |
| Abnormal NIPT | | Normal | Y | IUD |
|  | 29 | 32+0 | Skeletal malformations | | Normal | Y | IUD |
| Multiple abnormalities | | VUS | Y | IUD |
| After one month  (9) | Singleton (8) | 26 | 24+0 | Cardiovascular malformations | | Normal | Y | IUD |
| 41 | 27+0 | FGR | | CNV | Y | IUD |
| 36 | 30+5 | CNS malformations | | VUS | Y | IUD |
| 31 | 29+0 | FGR | | Normal | Y | IUD |
| 38 | 27+0 | Skeletal malformations | | Normal | Y | IUD |
| 28 | 25+2 | FGR | | Normal | Y | IUD |
| 31 | 25+5 | Multiple abnormalities | | Normal | Y | IUD |
| 24 | 26+0 | Cardiovascular malformations | | Normal | Y | IUD |
| MCDA | 32 | 25+1 | FGR | | CNV | Y | IUD |
| Normal | | Normal | Y | LB |
| **Chorioamnionitis** | Three days | Singleton | 28 | 28+0 | Multiple abnormalities | | Normal | Y | TOP |
| **Others (52)** |  | Singleton | 26 | 27+4 | CNS malformations | | Normal | Y | LB |
|  |  | Singleton | 24 | 27+0 | Ascites | | Normal | Y | TOP |
|  |  | Singleton | 34 | 25+0 | Digestive system malformations | | Normal | Y | LB |
|  |  | Singleton | 33 | 29+0 | Facial malformations | | Normal | Y | LB |
|  |  | Singleton | 27 | 29+2 | Facial malformations | | Normal | Y | LB |
|  |  | Singleton | 27 | 36+5 | Ventriculomegaly | | Normal | Y | TOP |
|  |  | Singleton | 34 | 25+2 | Skeletal malformations | | Normal | Y | Lost |
|  |  | Singleton | 32 | 34+0 | Urogenital malformations | | Normal | Y | LB |
|  |  | Singleton | 27 | 25+0 | CNS malformations | | Normal | Y | LB |
|  |  | Singleton | 37 | 28+0 | Multiple abnormalities | | Normal | Y | LB |
|  |  | Singleton | 36 | 24+0 | Cardiovascular malformations | | VUS | Y | TOP |
|  |  | Singleton | 37 | 25+0 | Ventriculomegaly | | Normal | Y | LB |
|  |  | Singleton | 29 | 28+0 | Cardiovascular malformations | | Normal | Y | TOP |
|  |  | Singleton | 39 | 27+0 | Abnormal NIPT | | Normal | Y | LB |
|  |  | Singleton | 26 | 27+0 | Fetal appendage malformations | | Normal | Y | Lost |
|  |  | Singleton | 28 | 33+0 | FGR | | Normal | Y | LB |
|  |  | Singleton | 37 | 29+0 | CNS malformations | | Normal | Y | LB |
|  |  | Singleton | 21 | 34+5 | Skeletal malformations | | Normal | Y | LB |
|  |  | Singleton | 24 | 28+0 | FGR | | Normal | Y | Lost |
|  |  | Singleton | 32 | 26+6 | Abnormal childbearing history | | Normal | Y | LB |
|  |  | Singleton | 26 | 26+4 | CNS malformations | | Normal | Y | LB |
|  |  | Singleton | 37 | 30+0 | Abnormal NIPT | | Normal | Y | LB |
|  |  | Singleton | 31 | 25+4 | CNS malformations | | Normal | Y | LB |
|  |  | Singleton | 35 | 28+0 | Polyhydramnios | | Normal | Y | LB |
|  |  | Singleton | 33 | 28+0 | Polyhydramnios | | Normal | Y | LB |
|  |  | Singleton | 31 | 31+0 | Polyhydramnios | | Normal | Y | TOP |
|  |  | Singleton | 36 | 32+2 | Abnormal NIPT | | Normal | Y | TOP |
|  |  | Singleton | 31 | 27+0 | Thoracic abnormalities | | Normal | Y | TOP |
|  |  | Singleton | 27 | 25+0 | Ventriculomegaly | | Normal | Y | LB |
|  |  | Singleton | 35 | 30+0 | Polyhydramnios | | Normal | Y | LB |
|  |  | Singleton | 24 | 25+1 | Facial malformations | | Normal | Y | LB |
|  |  | Singleton | 23 | 26+0 | Facial malformations | | Normal | Y | TOP |
|  |  | Singleton | 42 | 24+0 | Skeletal malformations | | Normal | Y | Lost |
|  |  | Singleton | 25 | 32+0 | FGR | | Normal | Y | LB |
|  |  | Singleton | 28 | 25+1 | Digestive system malformations | | Normal | Y | TOP |
|  |  | Singleton | 27 | 31+0 | Facial malformations | | Normal | Y | TOP |
|  |  | Singleton | 28 | 25+5 | CNS malformations | | Normal | Y | Lost |
|  |  | Singleton | 41 | 24+0 | CNS malformations | | Normal | Y | TOP |
|  |  | Singleton | 39 | 27+0 | Facial malformations | | Normal | Y | TOP |
|  |  | Singleton | 33 | 31+0 | Urogenital malformations | | Normal | Y | LB |
|  |  | Singleton | 30 | 24+2 | FGR | | Normal | Y | Lost |
|  |  | Singleton | 27 | 34+6 | CNS malformations | | Normal | Y | LB |
|  |  | Singleton | 30 | 27+0 | Ascites | | Normal | Y | LB |
|  |  | Singleton | 30 | 28+3 | Polyhydramnios | | Normal | Y | LB |
|  |  | Singleton | 25 | 31+6 | Fetal tumor | | Normal | Y | LB |
|  |  | Singleton | 33 | 26+0 | Urogenital malformations | | Normal | Y | LB |
|  |  | Singleton | 26 | 26+0 | Urogenital malformations | | Normal | Y | TOP |
|  |  | Singleton | 32 | 26+0 | Urogenital malformations | | Normal | Y | LB |
|  |  | Singleton | 28 | 26+0 | Polyhydramnios | | Normal | Y | LB |
|  |  | Singleton | 35 | 24+0 | Skeletal malformations | | Normal | Y | TOP |
|  |  | Singleton | 27 | 31+0 | Abnormal NIPT | | Normal | Y | LB |
|  |  | Singleton | 27 | 27+0 | Cardiovascular malformations | | Normal | Y | TOP |
| Total | 102 |  |  |  |  | |  |  |  |

Abbreviations: PTB-Preterm birth; IUD-Intra uterine death; MCDA-Monochorionic diamniotic pregnancies with double puncture; DCDA-Dichorionic diamniotic twin pregnancies with double puncture; FGR-Fetal growth restriction; SGA-Small for gestational age infant, defined as a SFH <10th centile; SFH-Symphysis fundal height; NIPT-Noninvasive prenatal testing; CMA-Chromosomal microarray analysis; CNS malformations-Central nervous system malformations; VUS-Variants of uncertain significance; LB-Live birth; TOP-Termination of the pregnancy.

**Table S2 CMA results**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CMA results | Details | Maternal  Age | Timing of amniocentesis | Indication of  amniocentesis | Karyotyping  (-/results) | Fetal  outcome |
| ***pathogenic*** | ***133*** |  |  |  |  |  |
| Aneuploidies  (66) | Trisomy 21（36） | 36 | 24+0 | Urogenital malformations | - | TOP |
| 37 | 25+0 | Cardiovascular malformations | T21 | TOP |
| 26 | 25+1 | Cardiovascular malformations | - | TOP |
| 18 | 31+6 | Multiple abnormalities | - | TOP |
| 26 | 25+0 | Multiple abnormalities | - | TOP |
| 25 | 24+0 | Cardiovascular malformations | - | TOP |
| 35 | 36+0 | Abnormal NIPT | T21 | TOP |
| 34 | 33+6 | Multiple abnormalities | T21 | TOP |
| 32 | 24+5 | Abnormal NIPT | - | IUD |
| 29 | 24+0 | Increased NT | T21 | TOP |
| 29 | 25+0 | Cardiovascular malformations | - | TOP |
| 46 | 32+1 | Polyhydramnios | - | TOP |
| 23 | 25+0 | Abnormal NIPT | Normal | TOP |
| 30 | 24+0 | CNS malformations | - | TOP |
| 26 | 31+5 | Ventriculomegaly | - | TOP |
| 36 | 28+0 | Abnormal NIPT | - | TOP |
| 37 | 24+0 | Ventriculomegaly | - | TOP |
| 40 | 25+2 | Abnormal NIPT | T21 | LB |
| 39 | 28+0 | Increased NT | - | TOP |
| 40 | 31+0 | Abnormal NIPT | T21 | TOP |
| 39 | 32+0 | CNS malformations | T21 | LB |
| 27 | 24+0 | CNS malformations | - | TOP |
| 31 | 30+0 | Abnormal NIPT | - | TOP |
| 44 | 29+0 | Cardiovascular malformations | Normal | TOP |
| 42 | 25+0 | Abnormal NIPT | - | TOP |
| 31 | 25+0 | Urogenital malformations | - | TOP |
| 39 | 36+4 | Facial malformations | - | TOP |
| 46 | 24+0 | Advanced maternal age | - | TOP |
| 42 | 24+1 | Increased NT | - | TOP |
| 33 | 24+0 | Abnormal NIPT | - | TOP |
| 34 | 30+0 | FGR | - | TOP |
| 29 | 26+4 | Abnormal NIPT | - | TOP |
| 27 | 28+5 | Abnormal NIPT | - | TOP |
| 24 | 26+1 | Skeletal malformations | - | TOP |
| 26 | 32+4 | Abnormal NIPT | - | TOP |
| 27 | 25+3 | Abnormal NIPT | - | TOP |
| Trisomy 18（9） | 39 | 33+0 | Multiple abnormalities | T18 | TOP |
| 34 | 27+0 | Multiple abnormalities | T18 | TOP |
| 28 | 24+4 | Cardiovascular malformations | T18 | TOP |
| 33 | 25+0 | Multiple abnormalities | Normal | TOP |
| 23 | 32+0 | Abnormal NIPT | T18 | TOP |
| 39 | 25+6 | Multiple abnormalities | T18 | TOP |
| 39 | 24+0 | Abnormal NIPT | T18 | TOP |
| 46 | 26+0 | Multiple abnormalities | - | TOP |
| 33 | 26+0 | Multiple abnormalities | T18 | TOP |
| Trisomy 13（5） | 33 | 25+6 | Multiple abnormalities | T13 | TOP |
| 33 | 27+0 | Abnormal NIPT | T13 | TOP |
| 36 | 25+4 | Facial malformations | - | TOP |
| 21 | 26+0 | Cardiovascular malformations | - | TOP |
| 30 | 24+1 | Multiple abnormalities | T13 | TOP |
| Trisomy 8 | 30 | 26+0 | Urogenital malformations | - | TOP |
| Trisomy 9 | 29 | 30+5 | Cardiovascular malformations | - | TOP |
| Trisomy 12 | 42 | 24+3 | Multiple abnormalities | - | TOP |
| XYY | 27 | 25+0 | Increased NT | XXY | TOP |
| XO（3） | 29 | 24+0 | Fetal tumor | XO | TOP |
| 30 | 26+0 | Increased NT | XO | TOP |
| 20 | 24+6 | Cardiovascular malformations | - | TOP |
| XXX（4） | 41 | 24+1 | Abnormal NIPT | XXX | LB |
| 30 | 24+0 | Abnormal NIPT | XXX | TOP |
| 32 | 26+0 | Abnormal NIPT | - | TOP |
| 44 | 33+0 | Abnormal NIPT | - | LB |
| XXY (5) | 29 | 25+0 | Abnormal NIPT | XYY | TOP |
| 39 | 24+2 | Abnormal NIPT | XYY | TOP |
| 30 | 26+6 | Abnormal NIPT | - | TOP |
| 23 | 27+0 | Abnormal NIPT | XYY | TOP |
| 30 | 24+0 | Abnormal NIPT | - | TOP |
| CNV  (67) | arr[hg19]Xp22.31 (6,455,151-8,141,076)×1 | 24 | 30+0 | CNS malformations | - | TOP |
| arr[hg19]22q11.21(18,631,364-20,312,661) x1; arr[hg19]16p11.2(29,591,326-30,176,508) x3 | 38 | 29+0 | Polyhydramnios | - | TOP |
| arr[hg19]17p12p11.2(15,162,475-18,922,171) x3; arr[hg19]20p13p11.1(61,661-25,969,009) x3; arr[hg19]20q13.31q13.33(55,167,384-62,913,645) x3; | 28 | 35+0 | Polyhydramnios | Normal | TOP |
| Xp deletion | 24 | 31+0 | Multiple abnormalities | - | TOP |
| arr[hg19]22q11.21(18,909,032-21,357,982) ×1 | 24 | 31+0 | CNS malformations | Normal | TOP |
| arr[hg19]9p24.3p23(208,454-9,893,613) x1 | 36 | 25+1 | Cardiovascular malformations | - | TOP |
| arr[hg19]6q27(165,051,708-170,914,297) x1，arr[hg19]Xp22.33p22.31(168,551-7,432,529) x3 | 33 | 27+4 | CNS malformations | - | PTB |
| arr[hg19]13q12.3q34(31,140,327-115,107,733) x3 | 35 | 29+0 | Urogenital malformations | T13 | TOP |
| arr[hg19]17q24.2q25.3(66,500,116-81,041,823) x3 | 24 | 32+4 | Multiple abnormalities | Normal | TOP |
| arr[hg19]11q23.3q25(116,683,754-134,937,416) x3，arr[hg19]22q11.1q11.21(16,888,899-20,312,661) x3 | 30 | 24+0 | CNS malformations | Normal | TOP |
| arr[hg19]9p24.3q33.1(208,454-121,129,461) x3，arr[hg19]15q11.2(23,021,272-23,625,785) x1， arr[hg19]Yq11.223(24,216,828-24,985,599) x0 | 20 | 26+0 | CNS malformations | Normal | TOP |
| arr[hg19]11q23.3q25(119,976,308-134,937,416) x1 | 22 | 25+0 | Cardiovascular malformations | Normal | TOP |
| arr[hg19]11q23.3q25(119,976,308-134,937,416) x1 | 34 | 28+0 | Cardiovascular malformations | Normal | TOP |
| 8p23.3p23.2(158,048-2,330,754) x1 | 37 | 25+0 | Skeletal malformations | Normal | TOP |
| 5q21.1q22.2(100,985,750-111,944,682) x3 | 37 | 28+0 | Abnormal NIPT | 46XN, dup (5) (q14q15) | TOP |
| arr[hg19]6q16.1q22.33(98,351,396-127,801,511) x1 | 27 | 28+4 | Cardiovascular malformations | - | TOP |
| arr[hg19]17q11.2(28,964,063-30,341,286) x3 | 21 | 36+5 | Multiple abnormalities | Normal | TOP |
| arr[hg19]18q22.3q23(72,905,846-78,013,728) x1 | 40 | 25+6 | Advanced maternal age | 45,XN，der(18;22)(q23;q11) | TOP |
| arr[hg19]1q43q44(238,904,667-249,224,684) x1，arr[hg19]18q12.3q23(42,711,437-78,013,728) x3 | 25 | 24+6 | CNS malformations | - | IUD |
| arr[hg19]4p16.3p15.2(68,345-21,759,310) x1 | 37 | 24+0 | Abnormal NIPT | 46，？del（4）（p15） | TOP |
| arr[hg19]8p23.3q11.21(158,048-50,023,568) x3 | 40 | 25+3 | Multiple abnormalities | - | TOP |
| arr[hg19]22q11.21(19,024,793-21,800,471) x1 | 26 | 30+5 | Multiple abnormalities | Normal | TOP |
| arr[hg19]12p12.1p11.1(25,600,696-34,435,128) x1 | 31 | 26+0 | FGR | - | TOP |
| arr[hg19]1q42.3q44(236,509,301-249,224,684) x1，arr[hg19]13q31.3q34(93,051,804-115,107,733) x3，arr[hg19]12p13.33p12.3(173,786-19,752,605) x3，arr[hg19]18q12.1q23(29,208,109-78,013,728) x3 | 25 | 33+3 | Multiple abnormalities | - | TOP |
| arr[hg19]4q34.1q35.2(174,919,364-190,957,460) x1 | 30 | 25+2 | Cardiovascular malformations | - | TOP |
| arr[hg19]2q21.2q32.1 (135,005,276-187,747,001) x3 | 24 | 28+2 | Multiple abnormalities | Normal | TOP |
| arr[hg19]7p22.3p21.1(43,376-17,430,718) x3，arr[hg19]8p23.3p23.2(158,048-4,146,842) x1 | 37 | 24+2 | CNS malformations | - | TOP |
| arr[hg19]22q11.21(18,648,855-21,800,471) x1 | 27 | 24+0 | Cardiovascular malformations | - | TOP |
| arr[hg19]22q11.21q11.22(21,464,763-22,962,962) x1 | 25 | 32+5 | Urogenital malformations | Normal | LB |
| arr[hg19]7q11.23(72,669,480-74,146,927) x1 | 29 | 32+4 | Cardiovascular malformations | - | TOP |
| arr[hg19]1p36.33p36.31(849,466-7,042,183) x1 | 29 | 28+4 | CNS malformations | Normal | Lost |
| arr[hg19]Xp22.31(6,455,151-8,144,378) x1 | 25 | 27+1 | Ventriculomegaly | - | TOP |
| MOS dup 4q，arr[hg19]Xp22.33q28(168,551-155,233,098) x1-2 | 28 | 32+3 | Multiple abnormalities | - | TOP |
| arr[hg19]7p14.1(40,748,621-42,108,287) x1 | 26 | 24+0 | Cardiovascular malformations | - | LB |
| arr[hg19]4p16.3p16.1(68,345-8,037,418) x1， arr[hg19]4p16.1p15.33(8,043,770-13,253,562) x3 | 21 | 33+5 | SGA | - | TOP |
| arr[hg19]6q24.2q25.1(144,902,123-150,394,779) x1 | 33 | 25+0 | Cardiovascular malformations | - | TOP |
| arr[hg19]21q11.2q21.2(15,016,486-24,118,504) x4 | 40 | 31+0 | Urogenital malformations | - | LB |
| arr[hg19]3q28(188,465,893-189,665,334) x1 | 33 | 25+0 | Facial malformations | Normal | TOP |
| arr[hg19]Xp22.33p22.31(168,551-9,355,864) x0 dn | 22 | 26+0 | CNS malformations | - | TOP |
| arr[hg19]7p22.3p22.1(43,376-5,893,763) x3， arr[hg19]18q22.1q23(65,027,042-78,013,728) x1 | 33 | 27+3 | CNS malformations | - | TOP |
| arr[hg19]22q11.21(18,648,855-21,800,471) x1 | 34 | 26+3 | Multiple abnormalities | - | TOP |
| arr[hg19]22q11.21(18,648,855-21,800,471) x1 | 29 | 26+0 | Cardiovascular malformations | - | TOP |
| arr[hg19]22q11.21(18,648,855-21,800,471) x1 | 35 | 24+0 | Urogenital malformations | Normal | TOP |
| arr[hg19]4p16.3p16.1(68,345-8,530,222) x1 | 32 | 24+0 | Cardiovascular malformations | Normal | TOP |
| arr[hg19]15q11.2q13.3(22,770,421-32,439,524) x4 | 32 | 35+5 | Skeletal malformations | - | PTB |
| arr[hg19]22q11.21(18,919,477-21,915,207) x3 | 20 | 24+5 | Cardiovascular malformations | - | LB |
| MOS LOH 1qter | 23 | 34+0 | positive 2nd trimester DS screening | - | TOP |
| arr[hg19]12p13.33p13.32(173,786-3,543,326) x1dn | 32 | 24+1 | Abnormal NIPT | - | TOP |
| arr[hg19]8p23.3p23.1(158,048-7,044,046) x1，arr[hg19]8p23.1p11.22(12,532,885-39,678,723) x3 | 34 | 27+6 | CNS malformations | - | TOP |
| arr[hg19] Xp22.33 or Yp11.32(313,342-1,234,634 or 263,342-1,184,634) x1 | 29 | 30+0 | positive 2nd trimester DS screening | - | TOP |
| arr[hg19]15q13.2q13.3(31,104,220-32,915,723) x3 | 26 | 26+5 | Facial malformations | - | TOP |
| arr[hg19]5p15.33p15.2(113,576-12,379,751) x1，arr[hg19]8p23.3p11.21(158,048-41,283,514) x3 | 33 | 26+6 | Multiple abnormalities | - | TOP |
| arr[hg19]5p15.33p15.1(113,576-17,625,620) x1 | 29 | 34+4 | SGA | Normal | TOP |
| arr[hg19]22q11.21(18,636,749-21,800,471) x1 | 25 | 24+0 | Cardiovascular malformations | - | TOP |
| arr[hg19]4p16.3p15.2(68,345-25,296,039) x3，arr[hg19]7q34q36.3(142,044,268-159,119,707) x1 | 29 | 29+0 | Abnormal NIPT | Normal | TOP |
| arr[hg19]7p22.3p12.1(162,702-51,548,268) x3，  arr[hg19] 9p24.3(208,454-823,768) x1 | 29 | 25+0 | Multiple abnormalities | - | TOP |
| arr[hg19]22q11.21(18,648,855-20,312,661) x1 | 36 | 25+2 | Cardiovascular malformations | - | LB |
| arr[hg19]13q11q12.12(19,436,286-24,296,868) x3 | 27 | 26+0 | Multiple abnormalities | - | TOP |
| arr[hg19]17q12(34,822,465-36,307,773) x1dn | 37 | 30+1 | Urogenital malformations | - | TOP |
| arr[hg19]16p11.2(29,428,531-30,350,748) x1 | 32 | 25+2 | Urogenital malformations | - | LB |
| arr[hg19]7q11.23(72,723,370-74,154,209) x1 | 44 | 31+1 | FGR | - | PTB |
| arr[hg19]2q37.2q37.3(236,664,895-242,782,258) x1 | 28 | 24+6 | Urogenital malformations | - | TOP |
| arr[hg19]2q37.3(239,928,338-242,782,258) x1 | 36 | 26+0 | Thoracic abnormalities | - | TOP |
| arr[hg19]Xp22.31(6,455,151-8,135,568) x0 | 31 | 24+0 | Facial malformations | - | TOP |
| arr[hg19]22q13.2q13.33(43,449,816-51,197,766) x1 | 27 | 24+4 | Urogenital malformations | - | TOP |
| arr[hg19]4p16.3p16.1(796,111-8,721,580) x1 | 29 | 24+6 | FGR | - | TOP |
| arr[hg19]22q11.21(18,631,364-21,800,471) x1 | 26 | 25+6 | Skeletal malformations | - | TOP |
| ***Uncertain Result*** | ***62*** |  |  |  |  |  |
| VUS  （50） | arr[hg19]7q14.1(38,842,718-39,352,266)×3 | 26 | 27+0 | Skeletal malformations | 46，X，inv（Y）(p11q11),?(20)(p11.2) | TOP |
| arr[hg19]6p12.3q15(49,625,289-91,133,167) hmz | 28 | 25+0 | Facial malformations | - | TOP |
| arr[hg19]4p16.3p12(68,345-45,810,772) x3 | 20 | 31+0 | Urogenital malformations | - | TOP |
| arr[hg19]Yq11.221q11.222(19,588,384-21,028,944)x0 | 22 | 29+6 | Multiple abnormalities | - | TOP |
| arr[hg19]2p12(78,484,700 - 80,089,819)×4 | 27 | 25+2 | Facial malformations | - | TOP |
| arr[hg19]9q21.12q21.33 (72,265,36687,478,135)hmz | 23 | 32+0 | Polyhydramnios | - | TOP |
| arr[hg19]1p32.3(54,846,200-55,355,662)x3 | 26 | 34+0 | CNS malformations | - | LB |
| LOH | 36 | 30+5 | CNS malformations | - | IUD |
| arr[hg19]6p24.3(7,897,062-9,521,761)x3 | 37 | 27+0 | positive 2nd trimester DS screening | - | LB |
| arr[hg19]Xq28(154,943,961-155,233,098) x3 | 29 | 26+5 | SGA | - | LB |
| arr[hg19]13q13.3(37,156,327-38,571,508) x1 | 27 | 26+5 | CNS malformations | - | LB |
| arr[hg19]7q11.22(70,236,723-70,705,107) x3 | 23 | 35+5 | Cardiovascular malformations | - | LB |
| arr[hg19]5p12p11(45,580,147-46,332,353) x3 | 28 | 25+0 | CNS malformations | Normal | TOP |
| arr[hg19]Xq28(152,916,789-153,029,189) x1 | 23 | 31+6 | Multiple abnormalities | - | TOP |
| arr[hg19]16p11.2(29,591,326-30,178,406) x3 | 24 | 25+4 | Cardiovascular malformations | - | LB |
| arr[hg19]6q24.1(140,944,532-141,969,994) x3 | 21 | 27+0 | CNS malformations | - | TOP |
| arr[hg19]7q31.1(110,868,170-111,340,760) x1 | 35 | 29+2 | Increased NT | - | LB |
| arr[hg19]17p13.2(4,007,665-4,555,135) x3 | 23 | 28+6 | Polyhydramnios | Normal | LB |
| XX (mos)1.74 | 26 | 32+2 | Urogenital malformations | - | LB |
| arr[hg19]14q21.1(38,617,015-39,439,526)x1 | 35 | 33+4 | SGA | - | LB |
| arr[hg19]16p12.2(21,405,327-21,931,248) x1 | 28 | 27+6 | Urogenital malformations | Normal | TOP |
| arr[hg19]22q11.21q11.22(20,964,245-22,769,923) x3 | 29 | 32+0 | Urogenital malformations | - | TOP |
| arr[hg19]1p36.32(3,540,373-4,089,613) x3 | 24 | 29+4 | FGR | - | LB |
| arr[hg19]16p12.2(21,405,327-21,931,248) x1 | 28 | 30+2 | Polyhydramnios | - | TOP |
| arr[hg19]22q11.22q11.23(22,997,928-25,043,045) x3 | 24 | 25+0 | Abnormal NIPT | - | TOP |
| arr[hg19]1p31.1(73,339,931-75,828,445) x3 | 24 | 24+0 | Urogenital malformations | TNNI3K | TOP |
| arr[hg19]16p13.11(14,892,975-16,527,659) x1 | 26 | 28+0 (MCDA) | Cardiovascular malformations | Normal | TOP |
| Normal | Normal | LB |
| arr[hg19]10q23.1(84,221,372-85,307,085) x4 | 38 | 37+0 | SGA | - | LB |
| arr[hg19]10q21.1(53,678,343-55,476,600) x1 mat，arr[hg19] 10q11.22q11.23(46,252,072-51,817,663) x3 mat | 22 | 30+5 | SGA | - | LB |
| arr[hg19]1q44(245,521,981-246,614,471) x1 mat | 25 | 25+5 | Cardiovascular malformations | - | LB |
| arr[hg19]5q21.2q21.3(103,557,086-105,405,016) x3 | 28 | 32+5 | Skeletal malformations | - | TOP |
| arr[hg19]13q21.2(60,321,686-60,709,021) x1 pat | 36 | 24+0 | Cardiovascular malformations | - | TOP |
| arr[hg19]7q21.2(91,269,594-91,785,021) x1 mat | 30 | 24+3 | Cardiovascular malformations | Normal | TOP |
| arr[hg19]15q13.2q13.3(30,386,398-32,444,043) x1 | 36 | 32+2 | Abnormal NIPT | - | TOP |
| arr[hg19]6p12.1(53,311,803-56,719,541) x3 mat | 28 | 24+0 | Abnormal NIPT | - | LB |
| arr[hg19]9p24.2p24.1(4,045,207-5,287,502) x1 | 26 | 29+5 | Cardiovascular malformations | - | LB |
| arr[hg19]1q21.3q23.2(152,250,211-160,474,715) x3 | 31 | 33+3 | Ascites | - | LB |
| arr[hg19]2q37.1(232,007,101-234,437,428) x1 | 31 | 24+2 | CNS malformations | - | LB |
| arr[hg19]3p22.1p21.31(41,940,980-46,722,973) x3 | 29 | 38+0 | CNS malformations | - | LB |
| arr[hg19]Xp22.31(6,455,151-8,135,568) x3 | 29 | 32+0 | Oligohydramnios | - | LB |
| LOH 3 | 29 | 32+0 | Multiple abnormalities | Normal | IUD |
| arr[hg19]22q11.21(21,059,669-21,800,471) x1 | 37 | 24+5 | CNS malformations | - | TOP |
| arr[hg19]16p13.11(15,058,820-16,309,046) x3 | 24 | 34+2 | Urogenital malformations | - | LB |
|  | arr[hg19]16p13.11(15,058,820-16,309,046) x3 | 32 | 30+5 | Multiple abnormalities | - | TOP |
| arr[hg19]18q22.3(68,818,406-70,628,255) x1 | 21 | 25+3 | Skeletal malformations | - | TOP |
| arr[hg19]12q14.3(66,835,964-67,536,493) x1 | 23 | 25+6 | Urogenital malformations | - | TOP |
| arr[hg19]2q21.2q21.3(134,963,256-135,984,068) x1 | 26 | 25+0 | Urogenital malformations | - | TOP |
| arr[hg19]5p15.2(12,115,804-13,495,391) x1 | 24 | 29+2 | Ventriculomegaly | - | TOP |
| UPD 11 | 24 | 24+0 | Polyhydramnios | - | TOP |
| Likely pathogenic  (7) | arr[hg19]16p11.2(29,351,826-30,190,029)x1 dn | 38 | 24+0 | Abnormal NIPT | - | LB |
| arr[hg19]20q11.21q12(29,846,302-38,591,841) x3 dn | 44 | 26+1 | CNS malformations | - | TOP |
| arr[hg19]5p13.2(36,746,516-37,410,586) x1 dn | 21 | 26+4 | Urogenital malformations | - | TOP |
| arr[hg19]17p13.3(999,008-1,583,647) x3 dn | 29 | 26+0 | Urogenital malformations | - | PTB |
| arr[hg19]16p13.11(14,892,975-16,527,659) x1 | 21 | 30+0 | FGR | - | LB |
| arr[hg19]16p11.2(29,428,531-30,190,029) x1 dn | 29 | 25+0 | CNS malformations | - | TOP |
| arr[hg19]1q31.1q31.3(187,769,077-195,376,998) x1 mat | 25 | 27+0 | Abnormal NIPT | - | LB |
| Likely Benign  (5) | arr[hg19]16p12.2 (21,816,542-22,431,357)x3 pat | 30 | 25+0 | Urogenital malformations | - | LB |
| arr[hg19]8q22.2(99,558,638-100,578,926)x3 mat | 32 | 28+0 | Urogenital malformations | - | LB |
| arr[hg19]3p12.3(76,329,290-79,621,422) x3 mat | 28 | 27+0 | CNS malformations | - | LB |
| arr[hg19]2q13(111,382,573-113,111,856) x1 pat | 27 | 29+1 | CNS malformations | - | PTB |
| arr[hg19]16q23.2(80,335,571-81,660,608) x3 mat | 28 | 30+0 | CNS malformations | - | LB |
| Total | 196 |  |  |  |  |  |

Abbreviations: CNV-Copy number variants; PTB-Preterm birth; IUD-Intrauterine death; SGA-Small for gestational age infant, defined as a SFH <10th centile(19); SFH-Symphysis fundal height; FGR-Fetal growth restriction; NIPT-Noninvasive prenatal testing; CMA-Chromosomal microarray analysis; CNS malformations-Central nervous system malformations; VUS-Variants of uncertain significance; LB-Live birth; TOP-Termination of the pregnancy.