**Objective** To analyze the appearing time of fallopian tube by real-time three-dimensional hysterosalpingo-contrast sonography (RT-3D-HyCoSy) and evaluate the visibility and patency of fallopian tube in infertility patients.

**Methods** A retrospective analysis was made in 50 infertility patients who underwent both RT-3D-HyCoSy and hysteroscopy combined with laparoscopy. All cases were confirmed by hysteroscopy combined with laparoscopy. The appearing time of fallopian tube were measured and compared statistically.

**Results** There were 27 cases (27/50, 54%) of bilateral unobstructed fallopian tube, 15 cases (15/50, 30%) of unilateral unobstructed fallopian tube, and 8 cases (8/50, 16%) of bilateral obstructed fallopian tube. Totally 69 fallopian tubes were unobstructed, and 31 were obstructed. The differences of appearing time of unobstructed fallopian tubes had no statistical significance ($\chi^2 = -5.12, p = 0.08$), as well as the obstructed fallopian tubes ($\chi^2 = -2.81, p = 0.25$). The appearing time of 69 unobstructed fallopian tubes was 1.67-31.73 s (the median was 6.68 s). The appearing time of 31 obstructed fallopian tubes was 0-25.05 s (the median was 1.67 s). The appearing time of obstructed fallopian tubes was less than that of unobstructed tube ($Z = 6.029, p = 0.01$).

**Conclusion** RT-3D-HyCoSy can be used to measure the appearing time of fallopian tubes precisely, which provides a new reference for evaluating the visibility and patency of fallopian tube in infertility patients.