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Patient Information: Infertility—Causes and Routine Diagnostic Evaluation

The generally accepted definition of infertility is failure to conceive after one year of regular intercourse without contraception. Regular intercourse would probably generally be defined as a frequency of one time per week or more. There are some situations where it is probably medically reasonable to “label” a couple as infertile even sooner, after just five to nine months of regular intercourse without conception. By far, the most common situation in which earlier evaluation and intervention are appropriate is when the female partner is “reproductively older,” (i.e., thirty-five to thirty-eight year of age or greater). Historically, there have been four common general causes of infertility, and three or four other causes that are substantially less common, though not vanishingly rare. As will be described below, in the last 10-15 years, a fifth very common cause of infertility has increasingly presented.

The four historically common general causes of infertility, what I tend to refer to as “The Big Four,” are: “tubal factor” infertility, ovulatory dysfunction or “ovarian factor” infertility, a “male factor” infertility, and endometriosis. A brief description of each of “The Big Four” causes of infertility follows.

Tubal factor is the term applied to infertility caused by scarring or impaired function of the female partner’s fallopian tubes. Infection, tubal pregnancy, and prior gynecologic or lower abdominal surgery are common causes of tubal damage; however, in many instances, the exact cause of the tubal damage cannot be known with complete certainty. The fallopian tube is the structure through which the sperm and egg must pass in order to meet and produce a fertilized egg. Scarring of these tubes can interfere with tubal function in several different ways. In some cases, scarring causes complete blockage of the tubes. In other cases, scarring weakens the wall and damages the lining of the tube, making it difficult or impossible for the tube to perform its functions of

transporting and nourishing the sperm and egg. In still other cases, the scarring only occurs around the tube, thereby greatly restricting the mobility of the tube. In this circumstance, the infertility results from the tubes' inability to move across to the ovary and pick up the egg from the ovary. As will be described in a bit more detail later, hysterosalpinography (an x-ray procedure in which dye is injected through the cervix and flows upward into the uterus and fallopian tubes), and laparoscopy ("telescope" surgery in which the reproductive organs are visualized and carefully inspected) are the main tests used to evaluate the tubes. In some cases of particularly severe tubal damage, where hydrosalpinx (fluid in the tube) is present, the diagnosis can be made or strongly suspected from ultrasound examination. The optimum treatment for tubal factor infertility depends on the severity and location of the tubal scarring and/or blockage. Until 12-15 years ago, corrective surgery was the main therapeutic option. Corrective tubal surgery was never highly effective, so in vitro fertilization-embryo transfer is ever increasingly utilized, though there are still occasions where surgery can be considered. In a minority of cases of tubal factor, the tube is blocked immediately next to the uterus, and in these cases, an x-ray procedure called tubal recanalization can sometimes be curative.

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