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Intersex and Middlesex:

Pseudohermaphroditism as portrayed by Calliope Stephanides and Zora in Jeffrey Eugenides'

Middlesex

Jeffrey Eugenides is incredibly thorough and accurate in his portrayal of pseudohermaphroditism and how it affects a child. His term "middlesex" is used to describe Cal, a child who is a pseudohermaphrodite. But Cal is not a physical hybrid like a Hermaphrodite, but is instead a gender identity hybrid. However, this is okay because the purpose of the novel is not to focus on physical differences, but the transition between gender identities. Middlesex is Eugenides' term to describe pseudohermaphrodites between gender identities.

The importance of literature like *Middlesex* is in highlighting the importance of sex versus gender, and that sex and gender identity is not always as clear as our society tries to make it. This is important to current issues like Transsexualism and gay marriage. Literature has a long standing tradition of bringing ignored topics to light in revealing ways, and in the high tension debate of gay marriage, the issue of hermaphroditism and pseudohermaphroditism must be acknowledged. Literature such as *Middlesex* is an important step in this process.

In this paper I am going to give a brief overview of the types of sexual disorders found in *Middlesex*, and summarize the differences in hermaphroditism and pseudohermaphroditism. I

will explain in detail what Cal's condition is, and elaborate on a few terms used in the book such as "intersex" and "Berdaches".

There are many things that determine the gender identity of a person, including chromosomes, hormones and how the person is raised. Chromosomal gender is determined by the father at conception. A female has XX chromosomes, and a male has XY. A mother will always donate an X chromosome, but the father may donate either an X or a Y. If he donates an X, the baby will have XX and be female. If he donates a Y the baby will have XY and be male. However, fetuses are biologically identical until the fourth week in the womb (Chromosomal Sex Determination).

Dr. Luce illustrates this to Tessy and Milton when he is explaining where Callie's development went wrong. Callie had a mutation in the SRD5A2 gene that prevented it from converting testosterone to DHT, preventing the development of external male genitals.

"...These two circles here are what we call the all-purpose gonads.

This little squiggle here is the Wolfian duct. And this other squiggle is the Müllerian duct. ... We're all born with potential boy parts and girl parts. ... Now" –he started drawing again—"as the fetus develops in the womb, what happens is that hormones and enzymes are released... they turn these little squiggles into either girl parts or boy parts." (Eugenides 427)

All fetuses have indifferent gonads and a Müllerian and Wolfian duct until the fourth to seventh week when hormones are released to wither one of them away and allow the other to form regular internal sex organs. If the fetus is genetically male, testosterone is released and the Müllerian duct withers, causing the internal organs to become male. The gonads become testes

and the duct becomes a seminal vesicle. If the baby is female, the Wolfian duct withers and the internal organs become female. The Müllerian duct becomes fallopian tubes and the gonads become ovaries (Gerdner).

What he later explains is how this went wrong in Callie. There is a gene in humans called the SRD5A2 gene in the fifth chromosome that also aids in sexual development. In males, the SRD5A2 gene turns some of the testosterone into a hormone called dihydrotestosterone, or DHT, which triggers the external genitalia to form as male. Without the DHT the external genitals automatically resemble female. So without DHT, Cal's genitals resemble female more than they do male (5-alpha Reductase Deficiency, SRD5A2).

There are many different sexual variations that can result from chromosomal problems with the X, Y, or both sex chromosomes. This can cause biological sexual variations like Turners Syndrome or hermaphroditism. True hermaphrodites have what is called mosaic chromosomes, where they have both XX and XY sex chromosomes present. This happens when two sperm enter the egg at the same time, donating both an X and Y to the mother's X (Gerdner).

Positive hermaphrodites have only one chromosomal sex but both gonad tissues present, which is the most common form of hermaphroditism. Negative hermaphrodites have irregular sex chromosomes, such as XO, but sometimes the variation is simply biological, as in Cal's case where a malfunctioning gene in the fifth chromosome (which is not one of the sex chromosomes) caused a hormonal problem (Gerdner). Sometimes there are psychological variations like Transsexualism. Carmen from Sixty-Niners is an example of transsexual behavior.

Her story followed the traditional lines better than mine. From an early age Carmen had felt that she had been born into the wrong body. In the dressing room one day, she told me in her South

Bronx voice: “I was like, yo! Who put this dick on me? I never asked for no dick.” (Eugenides 487)

Transsexualism is the most common form of psychological sexual “disorder”. Others include paraphilias, where an individual is attracted to objects or a specific object, pedophilia, where an individual is attracted to children, and sexual aversion, where the individual is actually repulsed by the thought of sex (Sexual & Gender Identity Disorders).

The medical field has been quick to label any variation of the socially accepted norm as a disorder, but it is pertinent to mention that the Intersex Society of North America has challenged the labeling of sex aversion, homosexuality and transsexualism as a disorder. A disorder is generally thought of as a disturbance of usual functioning, which is where the debate truly lies. What is defined as usual, or normal? Normal is a socially constructed label, and so it is vague at best on what is or is not considered normal medically, as the definition changes as public opinion does. Transsexualism, bisexuality, homosexuality, pseudohermaphroditism and hermaphroditism are all accepted in the Intersex Society.

Intersex is a term used to describe anyone who “doesn’t seem to fit the typical definitions of female or male” (FAQ). Because the definition varies with public opinion, at the time of the novel, in the seventies, Carmen probably would not have counted as intersex. This might explain why Eugenides does not spend a lot of time on her character. There are Intersex societies located all over the world and their main goal at the moment is to educate the public about the problems of labeling people with gender identity. They want people to be able to live as Intersex individuals without persecution from society for not choosing a single gender identity (FAQ).

The National Intersex Society of North America is currently fighting “normalizing” surgeries on infants, believing that the child should be old enough to make their own decisions

about surgery before it is performed. They have evidence that Intersex children can grow up to be well adjusted, mentally healthy people without normalizing surgery, and therefore find the surgeries to be unnecessary (FAQ).

A lot of people think that doctors do “normalizing” surgeries on infants and children with intersex because, if they didn’t, those children would grow up to be very damaged psychologically. In fact, there’s virtually no documented evidence for that.

A 1937 book, *Genital Abnormalities, Hermaphroditism, and Related Adrenal Diseases* recorded the lives of dozens of adults with “sexual ambiguity,” very few of whom were seeking “corrective” surgery. Most were fine with their physical differences. (FAQ)

The Intersex Society began to take hold in the seventies, which makes Zora’s endorsement historically accurate (FAQ). She is the first and only character other than adult Cal to use the term in the book.

There are three intersex individuals in *Middlesex*, however Eugenides chooses to focus on Zora and Cal. Cal and Zora are Pseudohermaphrodites; Zora specifically suffers from Androgen Insensitivity Syndrome (Eugenides 487). Androgen Sensitivity Syndrome is also a genetic mutation that, instead of the body not creating testosterone or DHT, as in Cal’s case, the body does not respond to it and therefore develops female both in the womb and at puberty (Diamond).

While hermaphrodites must have both gonad tissues present, pseudohermaphrodites only have one type of tissue in them and are almost always male. They are usually sterile and usually go through a male puberty. Pseudohermaphroditism is most often caused by a hormone disorder. Cal's specific type of Pseudohermaphroditism is called 5-Alpha Reductase Pseudohermaphroditism (SRD5A2).

The SRD5A2 gene mentioned above turns testosterone into DHT during the sex formation in the womb between the fourth and seventh week. 5-Alpha Reductase means that the SRD5A2 gene doesn't make DHT, or not enough of it, so while the internal genitals are mostly male the external look female or are ambiguous (SRD5A2).

Eugenides is incredibly accurate in his portrayal of Pseudohermaphroditism in *Middlesex*. Callie's "crocus" is actually called a micropenis, which usually has the urethra opening on the underside (SRD5A2). This is illustrated during the baptism scene (221 to 222). Without a micropenis the arc wouldn't have been possible. The fact that Cal had ambiguous genitalia, not purely female, proves that his SRD5A2 gene made a little bit of DHT, just not nearly enough. As Dr. Luce explains, "A penis is just a very large clitoris" (Eugenides 427). The gray area between a large clitoris and a small penis is usually a micropenis (SRD5A2).

Girls can have 5-Alpha Reductase, but because females do not use DHT it does not show. However, it means she could pass the condition on to her children if she marries someone with a recessive mutation as well. It can also lead to a condition in women called Polycystic Ovary Syndrome which "can lead to irregular menstruation, acne, excess body hair (hirsutism), and weight gain" (SRD5A2).

Many boys raised as girls who have micropenises do not realize it until puberty when testosterone makes it grow larger. Callie's was noticeable but unnoticed at birth, so he may have

had a larger micropenis than usual. Most male sufferers of 5-Alpha Reductase live their childhoods as girls, discover their condition at puberty, and live their adult lives as men (SRD5A2). This is also accurate in *Middlesex*. In 1974 Dr. Julianne Imperato-McGinley, a leading expert on genetic disorders, found development of children in the Dominican Republic with Cal's condition who underwent physical changes that seem to align themselves with *Middlesex* exactly.

They found a small community in the Dominican Republic in which several inhabitants had a genetic deficiency of the enzyme 5 α -ketosteroid reductase 2 [SRD5A2], the enzyme that converts testosterone to dihydrotestosterone [DHT]. ... Although XY children with this syndrome have functioning testes, they have a blind vaginal pouch and an enlarged clitoris. They appear to be girls and are raised as such. Their internal anatomy, however, is male...Interestingly, when the testes of these children produce more testosterone at puberty, the external genitalia are able to respond to the higher levels of the hormone, and they differentiate. The penis enlarges, the scrotum descends, and the person originally thought to be a girl is shown to be a young man.

(Chromosomal Sex Determination in Mammals)

We find in *Middlesex* that this seems to be the course of Callie's physical development. He isn't alone in his lifetime experiences, though it is much rarer in the United States.

Another important figure in *Middlesex* is Dr. Luce. Dr. Luce was based off of a real doctor. Dr. Money was a sexual psychologist at John Hopkins University who was famous in the

sixties and seventies for his nature over nurture theories (DeAngelo). Like Dr. Luce, both characters stubbornly refused to acknowledge evidence that contradicted their theories. Both doctors refused to admit they were wrong in their cases with intersex individuals. Both believed that if the child was raised as a girl, she would have a female gender identity.

As time and research has proved that biology has just as much to do with gender identity, theories of nurture over nature have slowly disappeared. But in the seventies, when Dr. Money was famous, the theory was alive and well. In the book, Eugenides uses Cal to prove Dr. Luce wrong as well.

Also present in *Middlesex* is the issue of intersex in different cultures. Zora speaks of Berdaches, also called two-spirits, which in the Cherokee culture are intersex. The Cherokee believe that human beings have two spirits, a male and female spirit, and that only one is born into the physical world while the other waits in the spirit world. They believe that people born intersex, whether they be physical hybrids like hermaphrodites or pseudohermaphrodites, or transsexuals, are born with both spirits and are considered complete humans.

Berdaches were respected and considered healers and prophets, and were usually wise and respected members of tribal politics. They use the Sun Dance as a way to connect to their other spirit, where men dress as women and women dress as men and dance. These practices continued until the United States government outlawed native religious practices in the 1800's (Warren).

Jeffrey Eugenides is incredibly accurate in his portrayal of pseudohermaphroditism. As a pseudohermaphrodite, Cal is genetically male with nothing more than a hormone disorder. But the main goal of the novel is not to tell the story of someone who is physically two things. Eugenides wanted to tell the story to illustrate the social pressures put on people to conform to

one single gender identity. Cal Stephanides is a gender identity hybrid. As he put it, “I was born twice: first, as a baby girl, on a remarkably smogless Detroit day in January of 1960; and then again, as a teenage boy, in an emergency room near Petroskey, Michigan, in August of 1974” (Eugenides 3). While it is good to know the specifics of Cal’s condition, it is not the main point of the novel. *Middlesex* is a term used to describe a state of being between gender identities.

This issue is significant to present day concerns over gay marriage. Regardless of what side readers take on the issue, there is an obvious lack of concern for intersex individuals and their rights. Where does someone like Cal or Zora lie in the debate? If Zora, a genetic male, chose to marry a woman, is it gay marriage? What if she chose to marry a man? Intersex individuals lie in a gray area between biological sex and gender identity that is not being addressed in the gay marriage issue.

Eugenides used Cal to show the gray area, differences between female and male gender roles in the United States and what happens when an individual fails to conform to those established roles, and in that he accomplishes his goal spectacularly. Cal is *Middlesex*.

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